■ **DO NOT REMOVE PANEL COVER BY UN-SCREWING**

To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside. And do not insert fingers or any other objects into the video cassette holder.

## WARNING:

**TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.**

## CAUTION:

**TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.**

## CAUTION:

**Do not install or place this unit in a bookcase, built in cabinet or in another confined space in order to keep well ventilated condition. Ensure that curtains and any other materials do not obstruct the ventilation condition to prevent risk of electric shock or fire hazard due to overheating.**

**Note:**
The rating plate (serial number plate) is on the bottom of the unit.

☐ is the safety information.

## Operating precaution

Operation near any appliance which generates strong magnetic fields may give rise to noise in the video and audio singals. If this should be the case, deal with the situation by, for instance, moving the source of the magnetic fields away from the unit before operation.

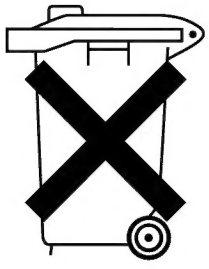
## IMPORTANT

**"Unauthorized recording of copyrighted television programs, films, video tapes and other materials may infringe the right of copyright owners and be contrary to copyright laws."**

## Attention/Attentie

- This apparatus contains a lithium battery for memory back-up.
- For the removal of the battery at the moment of the disposal at the end of the service life please consult your dealer.
- Do not throw away the battery. Instead, hand it in as hazardous waste.

- Dit apparaat bevat een lithiumbatterij voor memory back-up.
- Raadpleeg uw leverancier over de verwijdering van de batterij op het moment dat u het apparaat bij einde levensduur afdankt.
- Gooi de batterij niet weg, maar lever hem in als KCA.



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# INTRODUCTION

Thank you for purchasing this AJ-LT85 laptop editor.
This is a digital VTR using 1/4-inch tapes.
This laptop editor with its two digital VTRs features two mechanisms, two liquid-crystal monitors and editing control sections all combined into a single editing package. This single unit can perform cut editing on its own while its compact size, light weight and portability enable it to be taken anywhere with the greatest of ease.

## Features

- **Compact size and light weight**
  This editing package comes with two digital VTRs.
  Its compact size and light weight make the laptop extremely portable so that it can be taken anywhere for ready operation on, for instance, an office desk.

- **Cut editing**
  The two digital VTRs make it possible to conduct assemble editing and insert editing (video, audio and time code signals exactly as desired). These types of editing can be performed automatically.

- **Transmission function**
  The sound and playback images of the two digital VTRs can be transmitted from the output connectors provided for the respective signals. This feature is ideal for forwarding edited programmes. (Refer to the system connection diagram.)

- **Back-up recording**
  Back-up recording is enabled by the two digital VTRs. One of the VTRs can be used for playback and the other for recording. (Refer to the system connection diagram.)

- **Recording duration of up to 184 minutes**
  Either M cassette tapes (max. 66 minutes) or L cassette tapes (max. 184 minutes) can be used. In both cases, the tape is one-fourth of an inch wide to achieve a compact design.

- **Compatibility with consumer-use equipment**
  Consumer-use Mini DV cassette tapes which have been shot using a consumer-use digital camera can be played back on this laptop using the cassette adaptor (option: AJ-CS750P).

- **Liquid-crystal monitors**
  The laptop has two liquid-crystal TV monitors which support the two digital VTRs. This enables the images to be easily checked during the course of editing.

- **Volume controls**
  Each of the digital VTRs provides volume controls for recording and playing back the sound of two channels. The level meters below the liquid-crystal monitors make it easy to check the signal strength. There are also two speakers, and the actual sound can be checked using the desired combination of facilities.

- **Functional I/O interfaces**
  **Analogue I/O:** Each VTR is equipped with video and audio I/O connectors.
  **9-pin remote connectors (×2)**
  Each VTR comes with a 9-pin remote control connector to enable remote control operations using an external controller. VTR1 can also be switched so as to control an external VTR. The unit can be used to control another VTR which is equipped with a 9-pin connector and which serves as the edit source unit so that editing can be performed on VTR2.
  **Time code input/output**
  One time code input line is provided. The time code generators of VTR1 and VTR2 can be synchronized to an external time code. Time code output facilities are provided separately for VTR1 and for VTR2.

- **2-channel sound**
  Each of the two sound channels can be edited separately. Mix, swap and other functions can also be selected.

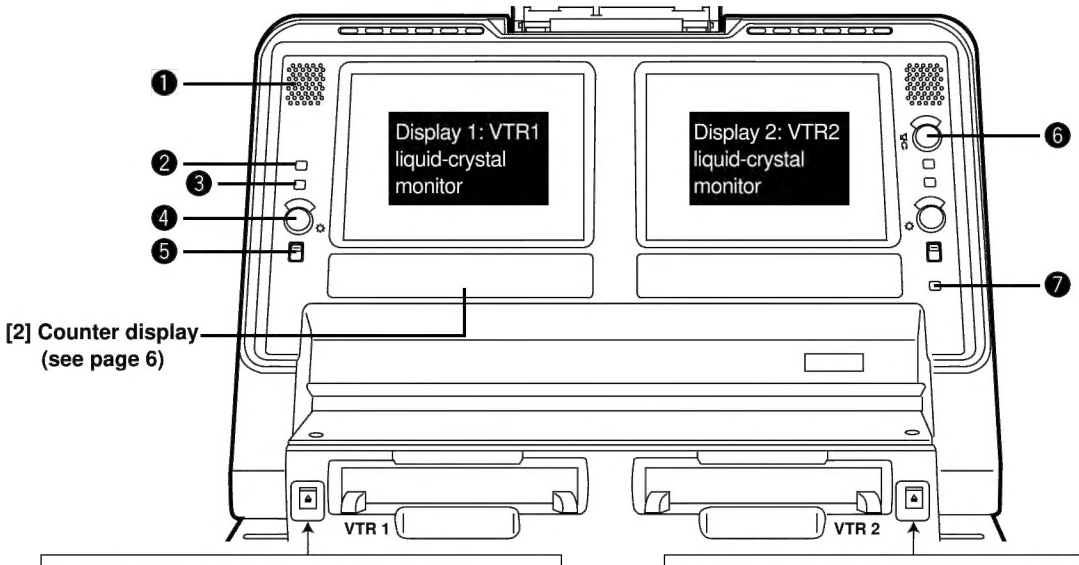
- **Dial jog and shuttle**
  Edit points can be searched smoothly by manipulating the jog dial. Shuttle is possible up to 32 times the normal tape speed in the forward or reverse direction.

- **Encoder provided**
  Each VTR has an encoder to adjust the output images. These encoders can be used for forwarding and other applications.

- **Editing of 100 events**
  One hundred programmes can be registered. Their edit points can be stored in the internal memory.

- **Time code**
  This laptop incorporates a time code generator (TCG)/time code reader (TCR) which can be used for time code editing.

- **On-screen settings**
  Highly personalized functions can be set on-screen.



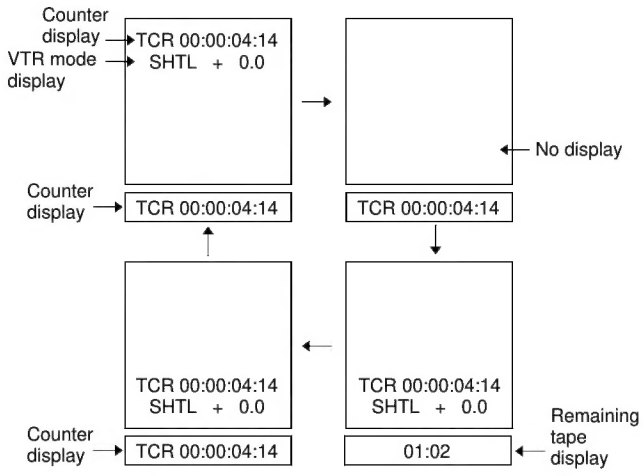

EJECT: Press this to eject the tape in VTR1. The tapes in both VTR1 and VTR2 can be ejected by pressing this button at the same time as ALL STOP.

EJECT: Press this to eject the tape in VTR2. The tapes in both VTR1 and VTR2 can be ejected by pressing this button at the same time as ALL STOP.

## [1] Liquid-crystal monitor section

**❶ Audio monitor speaker**
The VTR1 (or VTR2) monitor sound is heard through this speaker. Depending on the position selected by the SPEAKER/HEADPHONES switch, the VTR1 and/or VTR2 sound is selected and output.

**❷ COUNTER/REMAIN switch**
This selects the VTR1 display tube contents. When it is switched between the COUNTER and REMAIN positions, the on-screen (OSD) display position is switched. (Top, bottom and OFF)
Each time the switch is pressed, the display is switched as shown below.




* The display shown above appears on the LCD monitor only when set-up item No.001 (LCD SUPER) is set to ON.

**❸ EXT CHECK button**
While this button is held down, the external input of VTR1 can be checked. The level meter of the display section is set to the fine mode.

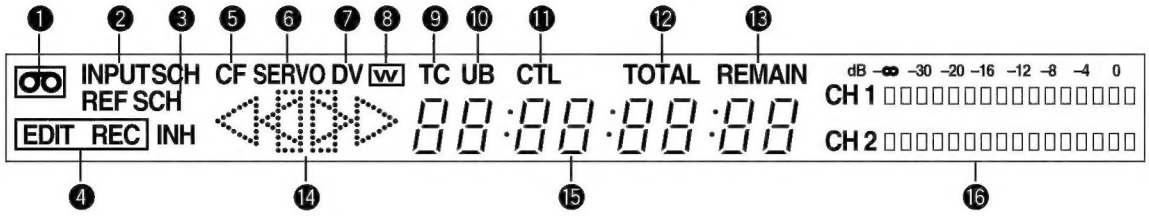
**❹ BRIGHTNESS control**
This is used to adjust the brightness of the VTR1 liquid-crystal display.

**❺ LCD switch**
This controls the power to the VTR1 LCD monitor and selects the brightness of the backlight.
**LIGHT:** For making the backlight brighter.
**DARK:** For making the backlight dimmer.
**OFF:** For turning off the LCD.

**❻ LEVEL control**
This is used to adjust the output level of the built-in speakers and headphones.

**❼ TOTAL button (for VTR2 only)**
While this button is held down, the total editing time from the edit start point to the current editing programme appears on the display counter.

The description of the VTR2 display is exactly the same as that for the VTR1 display.




## [2] Counter display section

❶ **"Cassette loaded" display**
This lights when a cassette has been loaded.
It flashes when STANDBY OFF mode is activated.

❷ **INPUT and SCH lamps**
These light when the SCH signal is input from an external source and SCH is in alignment.
- Only INPUT lights when the SCH signal is input and SCH is not in alignment.

❸ **REF and SCH lamps**
These light when the reference signal is input to the REF IN connector and SCH is in alignment.
- Only REF lights when the reference signal is input to the REF IN connector and SCH is not in alignment.

❹ **EDIT REC/REC/REC INH lamps**
**EDIT REC:** This lights when the VTR is in edit recording mode.
**REC:** This lights when the VTR is in recording mode.
**REC INH:** This lights when the VTR is in recording inhibit mode.

❺ **CF lamp**
This lights when the colour frame is locked.

❻ **SERVO lamp**
This lights when the servo is locked.

❼ **DV lamp**
This lights when a cassette recorded using a consumer-use DV machine has been loaded.

❽ **W lamp**
This lights when the 16:9 wide screen mode has been set.

❾ **TC lamp**
This lights when the time code data is displayed.

❿ **UB lamp**
This lights when the user bit is displayed.

⓫ **CTL lamp**
This lights when when control signal (CTL) is displayed.

⓬ **TOTAL lamp**
This lights when the total editing time is displayed.

⓭ **REMAIN lamp**
This lights when the remaining tape is displayed.

⓮ **Operation modes**
▷ : Appears during normal playback or recording.
▯▷ : Appears during playback at 0 to 1 × normal tape speed.
▯▷▷ : Appears during playback at 1 × or more times normal tape speed.
▷▷ : Appears during fast forwarding operations.
◁ : Appears during playback at –1 × normal tape speed.
◁▯ : Appears during playback in the reverse direction at –1 × to 0 times normal tape speed.
◁◁▯ : Appears during playback in the reverse direction at –1 × or more times normal tape speed.
◁◁ : Appears during rewinding operations.
▯▯ : Appears during in the pause/still mode

⓯ **Time counter display**

When nothing appears here, the time code cannot be read (no display either).

All the colons are cleared when the user bit is displayed.

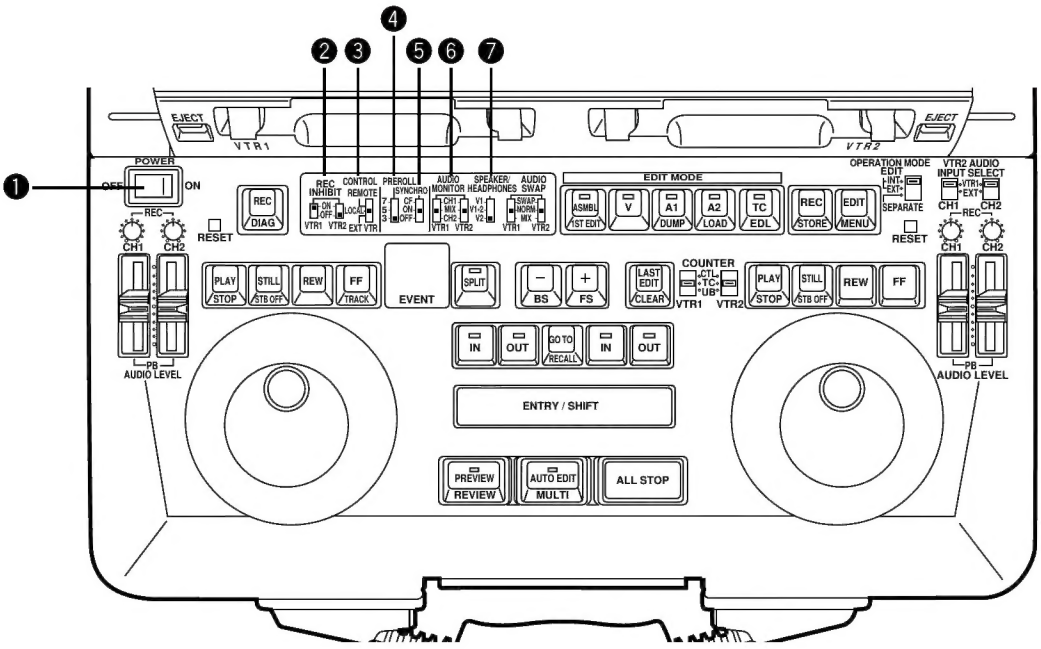
⓰ **Audio level meters**
- When the EXT CHECK button is pressed, the meter is set to the fine mode, the ▼mark is placed at the reference level (–18 dB), and each scale unit represents a 1 dB increment. The REC level can be adjusted by supplying reference level audio signals from an external source.

▼
CH 1 ■■■■■■■□□□□□□□□□
CH 2 ■□□□□□□□□□□□□□□□

- When a blank tape or blank part of a tape is played back, fast forwarded or rewound, the meter is set to the tape position display mode so that the current tape travel position can be ascertained.

**(Example)**

■□■■■□□□□□□□□□□■ ←10's digit in percentage figure ...3
■□■■■■■■□□□□□□□■ ←1's digit in percentage figure ...6
↑
The tape is now traveling past a position which is 36% of the entire length of the tape from its beginning.




## [3] Front Keyboard Switches

**❶ POWER switch**

**❷ REC INHIBIT switch**

**ON:** For inhibiting recording.

**OFF:** Recording is possible at this position.
Recording with VTR1 is possible only when the OPERATION MODE switch has been set to SEPARATE.

**❸ CONTROL switch**

**REMOTE:** For controlling the laptop from the external REMOTE connector (9P).

**LOCAL:** For controlling the laptop using the controls on the laptop's front panel.

**EXT VTR:** For controlling an external VTR from the unit's front panel.
It enables the VTR connected to the 9-pin connector on the VTR1 side to be operated by the control buttons of VTR1.

**❹ PREROLL switch**

This sets the preroll time to 3, 5 or 7 seconds.
When it is not possible to achieve synchronization, the preroll time is incremented by one setting. At the 7-second setting, the time remains at 7 seconds even if synchronization is lost.

**❺ SYNCHRO switch**

This sets whether synchronization and/or colour framing are to be performed.

**CF:** Both synchronization and colour framing are performed.

**ON:** Synchronization is performed but colour framing is not performed.

**OFF:** Synchronization is not performed.

**❻ AUDIO MONITOR switch (for both VTR1 and VTR2)**

**CH1:** The CH1 sound is output.

**MIX:** The sounds of CH1 and CH2 are mixed and output.

**CH2:** The CH2 sound is output.

**❼ SPEAKER/HEADPHONES switch**

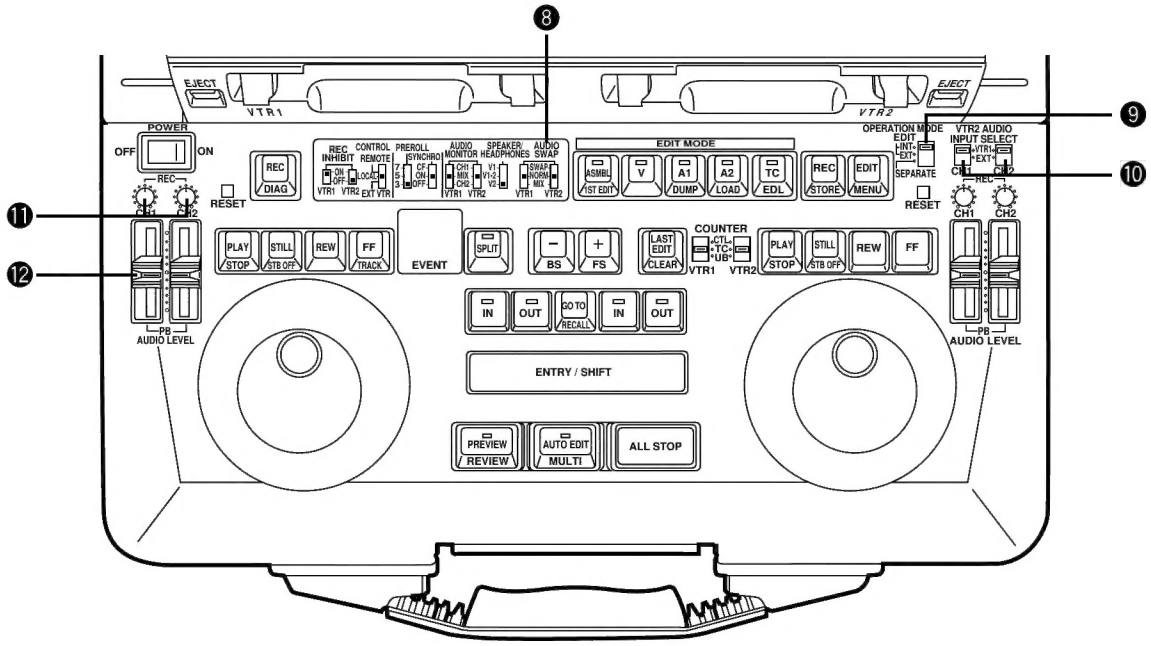
This selects the sound which is output from the speaker or headphones.

**V1:** The sound selected by the AUDIO MONITOR switch of VTR1 is output (in stereo when the AUDIO MONITOR switch has been set to the MIX position).

**V1•V2:** The sound by the AUDIO MONITOR switch of VTR1/VTR2 is output.
Left: Output sound of VTR1
Right: Output sound of VTR2

**V2:** The sound selected by the AUDIO MONITOR switch of VTR2 is output (in stereo when the AUDIO MONITOR switch has been set to the MIX position).

- This is valid only when set-up menu item No.711 (AUTO MONI) has been set to "V1+V2." When set-up menu item No. 711 (AUTO MONI) has been set to "AUTO," the sound of the VTR operated last is automatically output regardless of the switch position.
- When V1+V2 is selected, and editing or dubbing is performed from VTR1 to VTR2, the sound may be accompanied by an echo effect: this is normal and not indicative of malfunctioning. If this effect is unpleasant, select V1 or V2, or set AUDIO MONI on the above item to "AUTO."




**⑧ AUDIO SWAP switch (for both VTR1 and VTR2)**

This selects the audio output. (It is also effective when an internal connection is made from VTR1 to VTR2.)

| | CH1 output connector | CH2 output connector |
|---|---|---|
| **SWAP** | CH2 sound | CH1 sound |
| **NORM** | CH1 sound | CH2 sound |
| **MIX** | CH1, CH2 sound mixed | CH1, CH2 sound mixed |

- The SWAP, NORM or MIX sound is not output to the AUDIO MON OUT connector or HEADPHONES jack.
- The sound which is output from the built-in speakers and headphones remains unchanged.

**⑨ OPERATION MODE switch**

**INT:** In this mode, editing is performed using an internal connection from VTR1 to VTR2. VTR1 enters the recording prohibited mode.

**EXT:** In this mode, editing is performed using an external analogue connection from VTR1 to VTR2. VTR1 enters the recording prohibited mode.

**SEPARATE:** In this mode, VTR1 and VTR2 operate separately.

**Note:**

When editing a tape in VTR1 in the INT mode, the output signals from the PB VIDEO OUT connector or MONITOR OUT connector may be affected by vertical dancing, however no problem are posed with editing.

**⑩ VTR2 AUDIO INPUT SELECT switch**

This selects the audio CH1 and CH2 input of VTR2.

**VTR1:** The audio output signals of VTR1 are supplied to VTR2.

**EXT:** The external audio input signals of VTR2 are supplied to VTR2.

## Level Controls

**⑪ REC AUDIO LEVEL controls (for both VTR1 and VTR2)**

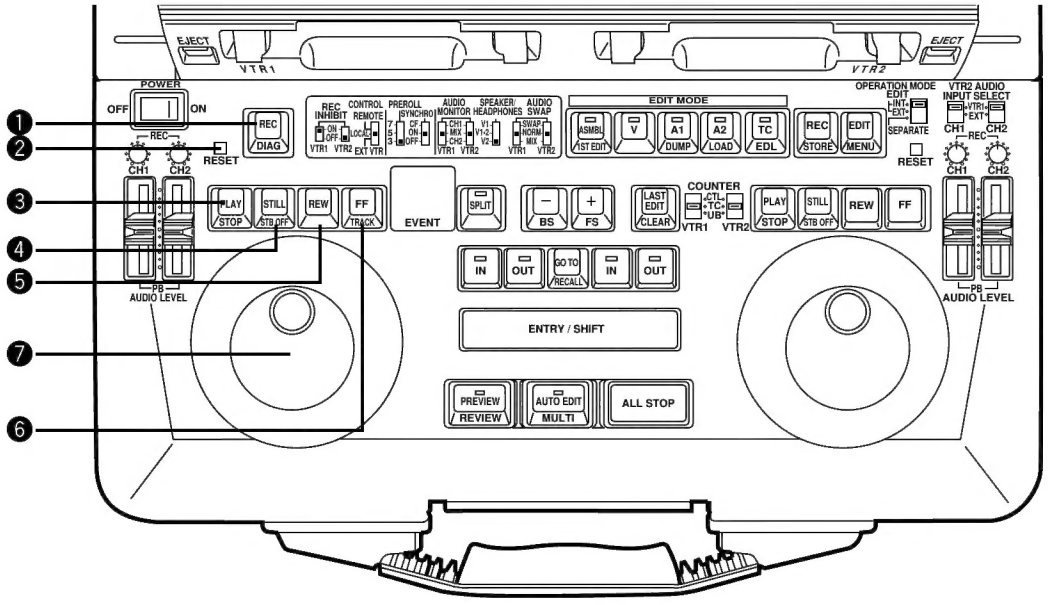
**CH1:** For adjusting the CH1 recording level.

**CH2:** For adjusting the CH2 recording level.

**⑫ PB AUDIO LEVEL controls (for both VTR1 and VTR2)**

**CH1:** For adjusting the CH1 playback level.

**CH2:** For adjusting the CH2 playback level.




## [4] Player/Recorder Control Section

**❶ REC button (for recorder control section only)**
To set the recorder VTR manually to the recording mode, press this button and the PLAY button together. Recording is possible on the VTR1 only if the OPERATION MODE switch of VTR1 is set to "SEPARATE."
**DIAG (SHIFT+DIAG):** Press these buttons to display the DIAG menu.

**❷ RESET button**
- This is used to reset the CTL counter on the VTR1 display section or to reset an edit point.
- When it is pressed together with the IN or OUT button, the registered IN point or OUT point is deleted.

## [5] VTR Control Section (for both VTR1 and VTR2)

**❸ PLAY (STOP) button**
Press this button to set the VTR to the playback mode.
**STOP (SHIFT+PLAY):** Press these buttons to set the VTR to the stop mode.

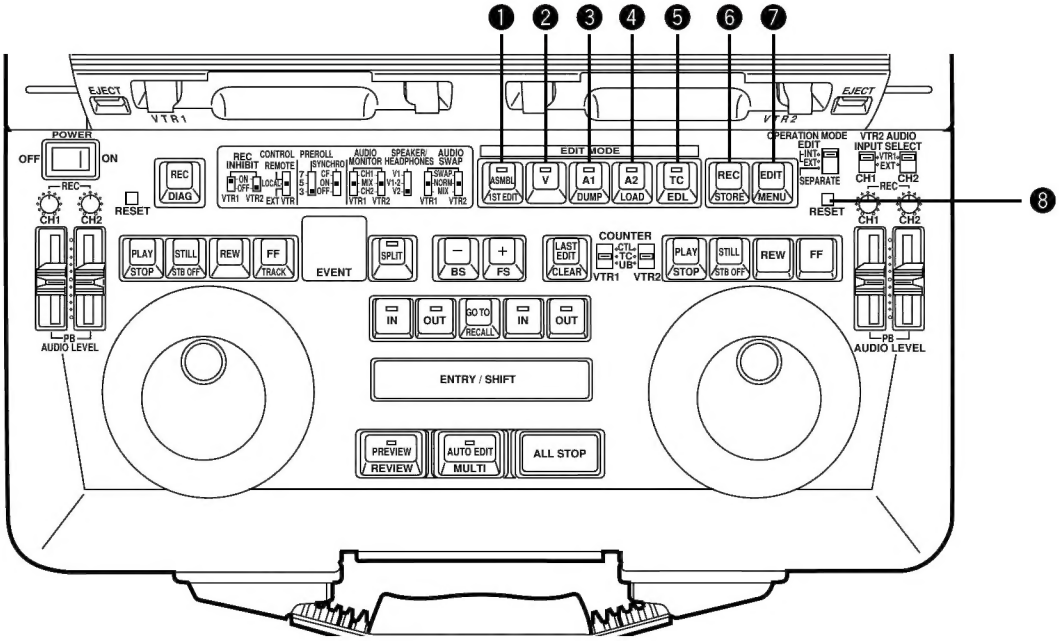
**❹ STILL (STB OFF) button**
**STILL:** Press this button to set the VTR to the still picture mode.
**STBOFF (SHIFT+STILL):** Press these buttons to release the standby mode in the still-picture or stop mode.

**❺ REW button (*)**
Press this to rewind the tape. The tapes in both VTR1 and VTR2 can be rewound by pressing this button at the same time as ALL STOP.

**❻ FF (TRACK: VTR1 only) button (*)**
**FF:** Press this to fast forward the tape.
**TRACK (SHIFT+FF, VTR1 only):** Press this to establish the TRACK mode. Refer to the section on the track functions.

**❼ Search dial button**
This controls the tape travel. Use it for locating edit points or for playback. In the "out" position, the dial is set to the shuttle mode; in the "in" position, it is set to the jog mode. Each time the dial is pressed, the selection is toggled between these two modes.

(*) The tape stops travelling when the REW and FF buttons are pressed together.




## [6] Edit Mode Setting Section

**❶ ASMBL button**

Press this to perform assemble editing. Check that the button LED has lit.

**1ST EDIT (SHIFT+ASMBL):** With VTR2, the registered position for the 1ST EDIT preset value is automatically set to -23 seconds. For details, refer to set-up menu item No. 312 (1ST EDIT DUR).

**❷ V button/lamp**

For inserting video signals, press this button. Check that its lamp is lit up.

**❸ A1 button**

Press this to insert the audio CH1 signals. Check that the button LED has lit.

**DUMP (SHIFT+A1):** Press this to download EDL data to an external device (such as a personal computer).

**❹ A2 button**

Press this to insert the audio CH2 signals. Check that the button LED has lit.

**LOAD (SHIFT+A2):** Press this to upload EDL data from an external device (such as a personal computer).

**❺ TC button**

Press this to insert the time code. Check that the button LED has lit.

**EDL (SHIFT+TC):** Press this to display the editing list on the LCD screen.

**❻ REC (STORE) button**

**REC:** To set the VTR manually to the recording mode, press this button and the PLAY button together.

When the REC button is pressed while the REC INHIBIT switch is at OFF, the VTR2 video and audio CH1 and CH2 will be set to the E-E mode while the button is held down.

**STORE (SHIFT+REC):** Press these buttons to set the VTR1 (playback) or VTR2 (recording) edit points and store the edit data in the internal memory.

The EVENT counter is simultaneously incremented. When the set-up operations are performed, the data which has been set is saved in the set-up memory.

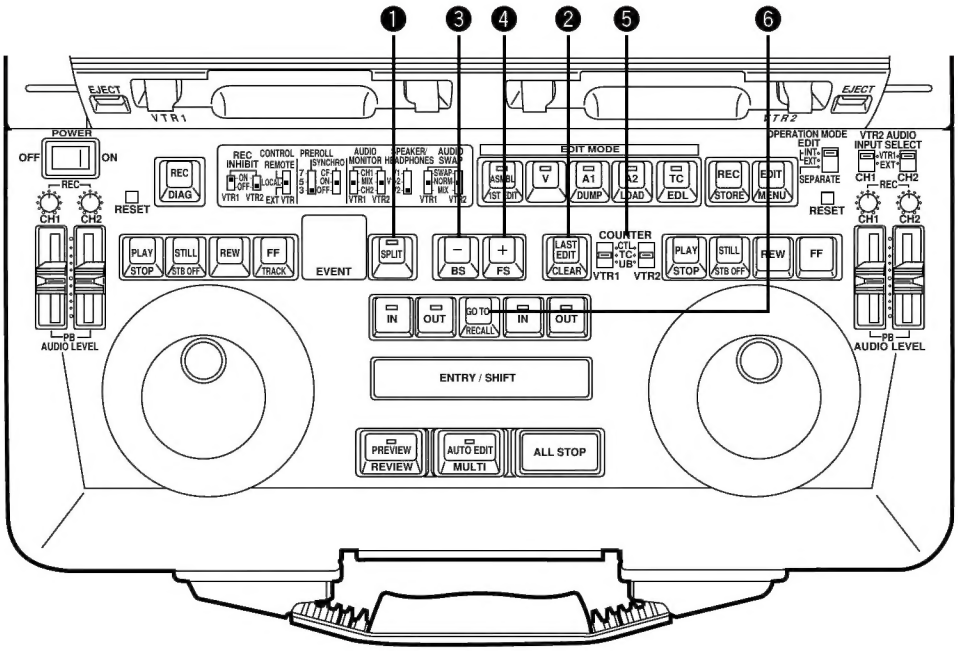
**❼ EDIT (MENU) button**

**EDIT:** Press this button to establish the E-E mode in accordance with the edit mode. While it is held down, the VTR2 video and audio input signals are output without being recorded in accordance with the edit mode. To conduct a recording, press this button together with the PLAY button in the VTR2 control section, while VTR2 is in the playback mode.

**MENU (SHIFT+EDIT):** Press these buttons to perform dial menu set-up.

**❽ RESET button**

- This resets the CTL counter on the VTR2 display section.
- When the IN or OUT button is pressed together with the RESET button, the registered IN or OUT point is cleared.




## [7] Automatic Editing Control Section

❶ **SPLIT button**
For split editing, press this so that the button LED lights, and then set the edit IN point to be split. Refer to set-up menu item No.311 (SPLIT EDIT).

❷ **LAST EDIT (CLEAR) button**
**LAST EDIT:** This button accesses the previously previewed contents. (It alternately accesses two sets of contents whose preview has been completed.)
**CLEAR (SHIFT+LAST EDIT):** These buttons delete the registered event. The "d" display appears for EDL.

❸ **– (BS) Minus trim button**
**–:** When the IN or OUT point which has been input is to be returned by one frame, this trim button is pressed while the IN or OUT button is pressed. To use this function continuously, keep pressing the buttons. To set further back both the IN and OUT points simultaneously for editing, press this trim button while the IN and OUT buttons are pressed.
**BS (SHIFT+"–"):** These buttons access the previous edit. Keep pressing the button to execute the function continuously.

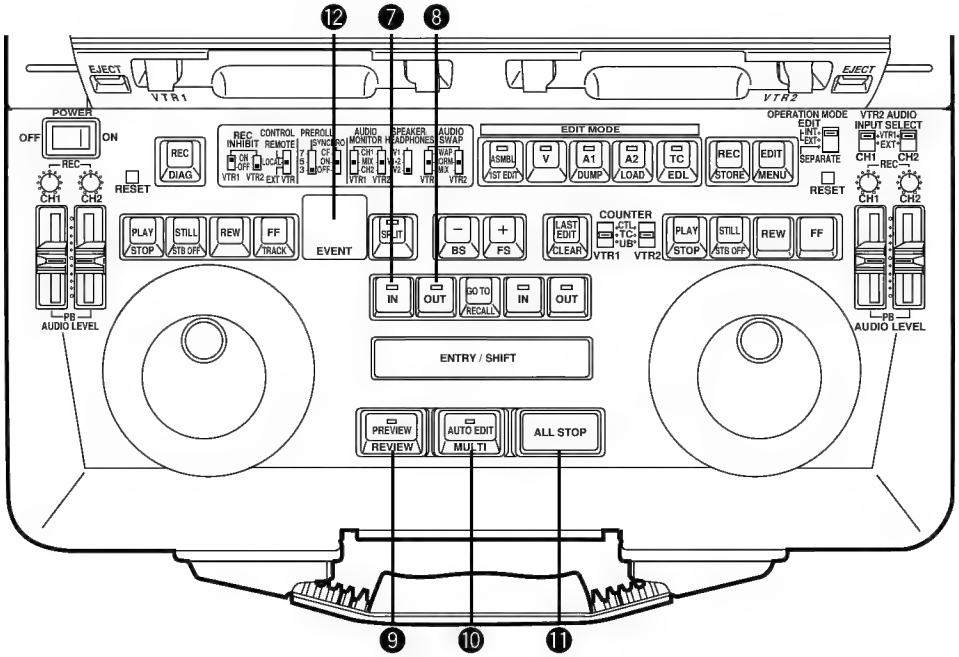
❹ **+ (FS) Plus trim button**
**+:** When the IN or OUT point which has been input is to be advanced by one frame, this trim button is pressed while the IN or OUT button is pressed. To use this function continuously, keep pressing the buttons. To advance both the IN and OUT points simultaneously for editing, press this trim button while the IN and OUT buttons are pressed.
**FS (SHIFT+"+"):** These buttons access the last event. Keep pressing the button to execute the function continuously.

❺ **COUNTER switchs**
These switches select the counter reference for VTR1 and VTR2.
**CTL:** At this switch position, the CTL pulse count after resetting appears on the counter display. It is reset by the RESET button.
**TC:** The time code (absolute value) which has been read appears at this position. It is not reset even if the RESET button is pressed.
**UB:** The user bit which has been read appears at this position.

❻ **GO TO/RECALL button**
**GO TO:** To check the IN or OUT point image, press the IN or OUT button while holding down the GO TO button. In the audio split edit mode, the audio IN point is searched when the IN button is pressed.
**RECALL (SHIFT+GO TO):** These buttons re-register an event which was deleted in the EDL mode. The "d" display changes to "no display."

This button does not work when the SEPARATE MODE switch has been set to SEPARATE.

# CONTROLS AND THEIR FUNCTIONS




**⑦ IN button (for both VTR1 and VTR2)**

Press this button while holding down the ENTRY button to register the IN point of the player or recorder.

Press it alone to check the IN point. While it is held down, the IN point appears on the display. To display the editing duration, press the IN and OUT buttons together.

"––:––:––:––" is displayed when the edit IN and OUT points are not registered.

**⑧ OUT button (for both VTR1 and VTR2)**

Press this button while holding down the ENTRY button to register the OUT point of the player or recorder.

Press it alone to check the OUT point. While it is held down, the OUT point appears on the display. To display the editing duration, press the OUT and IN buttons together.

**⑨ PREVIEW/REVIEW button**

**PREVIEW:** To conduct an editing rehearsal, press this button and light up its lamp.

**REVIEW (SHIFT+PREVIEW):** When reviewing the edited block, press this button and light up its lamp.

**⑩ AUTO EDIT/MULTI button**

**AUTO EDIT:** To start automatic editing, press this button and light up its lamp.

**MULT (SHIFT+AUTO EDIT):** Press these buttons to edit two or more events in succession from the current edit in the EDL mode. Editing is executed automatically until either the editing of the last event is completed or the ALL STOP button is pressed to forcibly terminate the editing.

**⑪ ALL STOP button**

When this button is pressed during preview, automatic editing or review, the ongoing operation is stopped.

However, only VTR2 is stopped when the OPERATION MODE switch has been set to "SEPARATE."

When the button is pressed together with the CLEAR button, all the events in the EDL are deleted, and the event number is set to "n01."

**⑫ Event number display**

Up to 100 (01 to 99, 00) edit data are controlled inside the laptop.

Two-digit event numbers appear on this display. Depending on the edit status, "n" or "d" appears in front of the event number.

**n:** A new event which is not registered in the EDL.

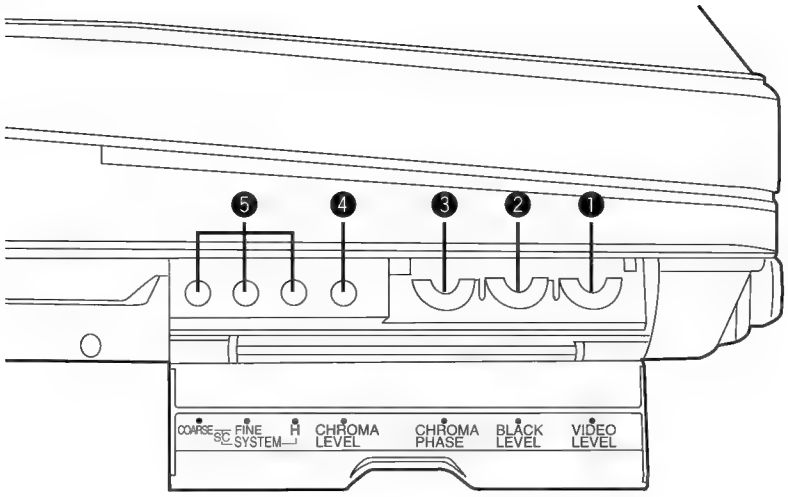
**d:** An event which was deleted from the EDL.

**No display:** An event which is registered in the EDL.

**FULL:** All 100 events have been registered.

**–:** When the laptop is operated by remote control or when the OPERATION MODE switch has been set to "SEPARATE."

**rSt:** When the power was turned on or when resetting was performed.




## [8] Side Panel Section (for both VTR1 and VTR2)

Signals conveyed via an internal connection cannot be adjusted.

❶ **VIDEO LEVEL control**
This is used to adjust the video level of the VTR s video output.

❷ **Black level control**
This is used to adjust the black level of the VTR s video output signals.

❸ **Chroma phase control**
This is used to adjust the chroma phase of the VTR s video output signals.

❹ **CHROMA LEVEL control**
This is used to adjust the chroma level of the VTR s video output signals.

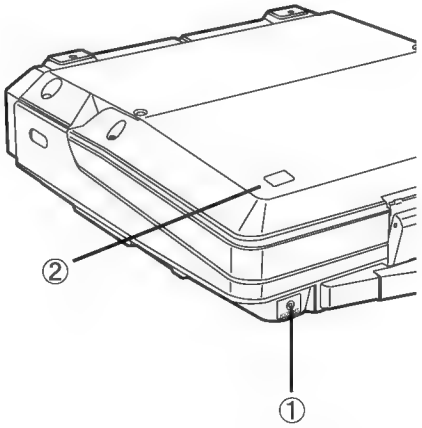
❺ **SYSTEM controls**
**H:** This is used to adjust the system phase in SC period increments.
**SC FINE:** This is used to adjust the SCH phase only; the SC phase is changed (the H phase remains unchanged).
**SC COARSE:** This is used to adjust the SCH phase in 90-degree increments (the H phase remains unchanged).

## [9] Front Section

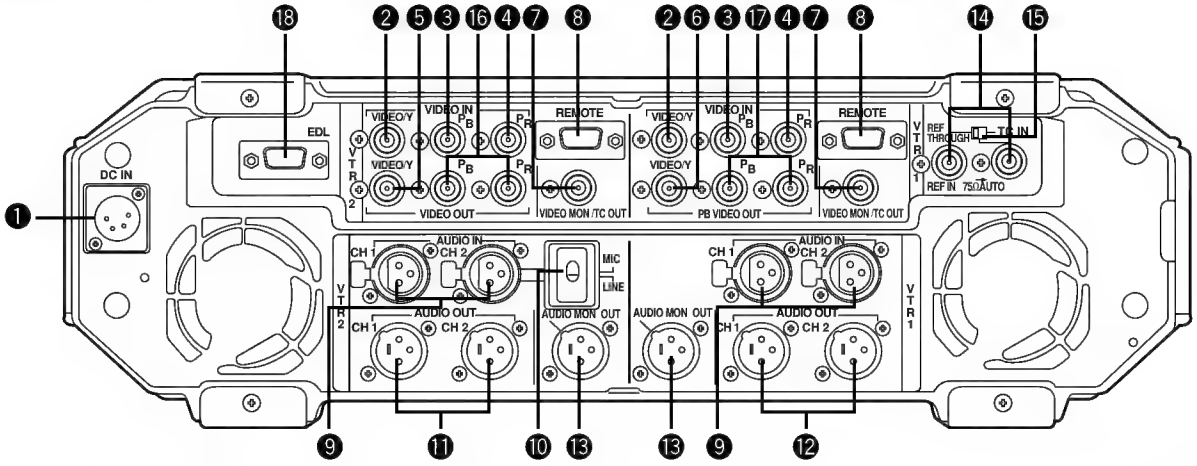
① **Headphone jack (Mini stereo)**
- When the headphones are plugged into this jack, the sound will no longer be heard through the built-in speaker.
- Adjust the headphones output level using the LEVEL control in the LCD monitor section.

## [10] Top Section

② **VTR operation display LED**
This indicator allows the user to check the operation status of the VTR even when the display is closed.
Off: Indicates the power OFF status.
Lights: Indicates that the power is on and the tape is stopped.
Flashes (at approx. 1-second intervals): Indicates that a tape is travelling in one of the VTRs.
Flashes (at approx. 0.5-second intervals): Indicates that tapes are travelling in both of the VTRs.
Flashes (at approx. 0.25-second intervals): Indicates the auto OFF status.



# CONTROLS AND THEIR FUNCTIONS




❶ **DC IN socket (XLR 4P)**
DC power input socket.
The AC adaptor AJ-B75 (optional accessory) must be used to supply the power. The unit's operation cannot be guaranteed if any other power supply is used instead.

❷ **VIDEO/Y IN connector (BNC)**
The analogue composite signal or analogue component Y signal is input to this connector. The input signal is selected using the set-up menu item No. 805 (V IN SEL) setting.

❸ **PB IN connector (BNC)**
The analogue component PB signal is input to this connector.

❹ **PR IN connector (BNC)**
The analogue component PR signal is input to this connector.

❺ **VIDEO/Y OUT connector (BNC) (VTR2 only)**
The analogue composite signals are output from this connector.
The Y (luminance) signal is output when CMPNT has been set for set-up menu item No. 806 (V OUT SEL).

❻ **PB VIDEO/Y OUT connector (BNC) (VTR1 only)**
The analogue composite signals are output from this connector during playback only (E-E signals are not output).
The Y (luminance) signal is output during playback only when CMPNT has been set for set-up menu item No. 806 (V OUT SEL). (E-E signals are not output).

❼ **VIDEO MON OUT/TC OUT connector (BNC)**
The video monitor signals are output from this connector.
The time code signal is output when TCOUT1 or TCOUT2 has been set for set-up menu item No. 514 (TC OUT).

❽ **REMOTE connector (D-SUB, 9P, female)**
This is the RS-422A interface remote connector. It enables the unit to be operated from an external controller. The VTR1 remote connector is switched to a REMOTE OUT connector by setting the CONTROL switch on the keyboard to EXT VTR so that an external VTR can be controlled using the VTR1 controls on this unit.

❾ **AUDIO IN connectors (CH1/CH2) (XLR ×2)**
The analogue audio signals are supplied to these connectors.

❿ **CH2 INPUT level switch**
Used to select the analogue audio input signal CH2 level.
**LINE:** Line input (+4/0/–20 dBu)
**MIC:** MIC input (–50 dBu)

⓫ **AUDIO OUT connectors (CH1/CH2) (XLR ×2) (for VTR2 only)**
Analogue audio signals are output from these connectors.

⓬ **PB AUDIO OUT connectors (CH1/CH2) (XLR ×2) (for VTR1 only)**
The analogue audio signals are output from these connectors only during playback. (The E-E signals are not output.)

⓭ **AUDIO MON OUT connector (XLR)**
The audio monitor signal is output from this connector.

⓮ **REF VIDEO IN/TC IN connectors (BNC ×2)**
Analogue composite signals are supplied to these connectors.
These are loop-through connectors provided with automatic 75-ohm termination.

⓯ **REF THRU/TC IN selector switch**
This selects whether the right-hand REF VIDEO IN/TC IN connector ⓮ is to be used as the REF loop-through connector or as the TC input connector.
- REF THRU: The connector is used as the REF loop-through connector. 75-ohm termination is provided automatically.
- TC IN: The connector is used as the time code input connector. The left-hand REF VIDEO IN connector ⓮ still serves as the REF input while the loop-through function is canceled, and the 75-ohm termination is fixed at ON.

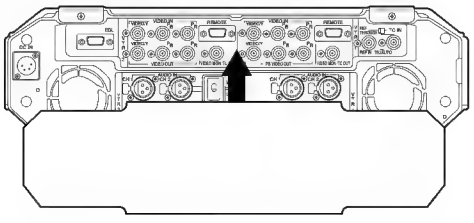
⓰ **VIDEO OUT connector (PB OUT/PR OUT) (BNC)**
The PB and PR signals among the analogue component signals are output from this connector.

⓱ **PB VIDEO OUT connector (PB OUT/PR OUT) (BNC)**
The PB and PR signals among the analogue component signals are output from this connector during playback only.

⓲ **EDL connector (D-SUB, 9P, male)**
This is used to connect to a personal computer, etc. to download and/or upload the edit list data.
It is also used to connect the audio memory unit which is available as an optional accessory.

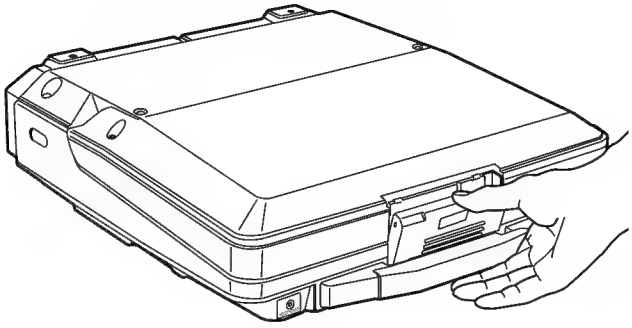
Before carrying the main unit, be sure to attach the accessory connector cover.

Do not turn on the unit's power with the connector cover attached.

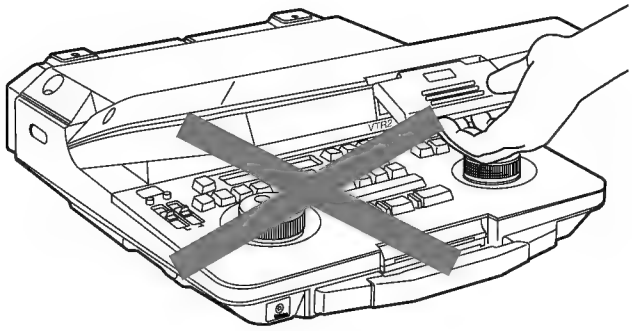


# OPENING AND CLOSING THE LAPTOP

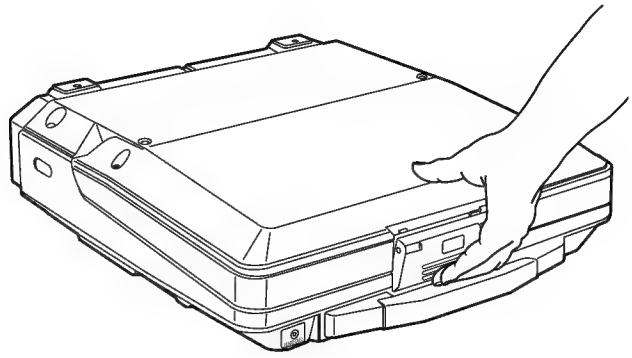




Pull the lever and release the lock.

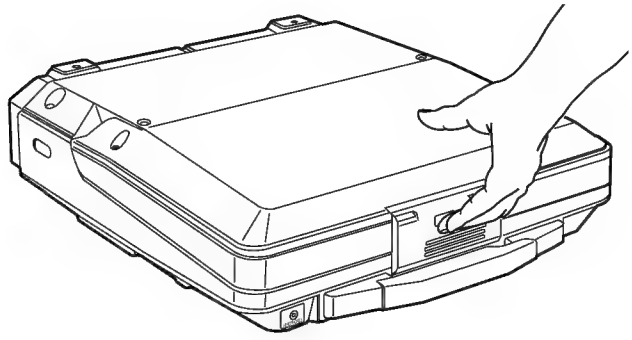


Do not take hold of the lever and use it to open the laptop.



Close the laptop while pushing the bottom of the lever, as shown in the figure on the left.

1 Push the bottom of the lever.
2 Push up the lever.

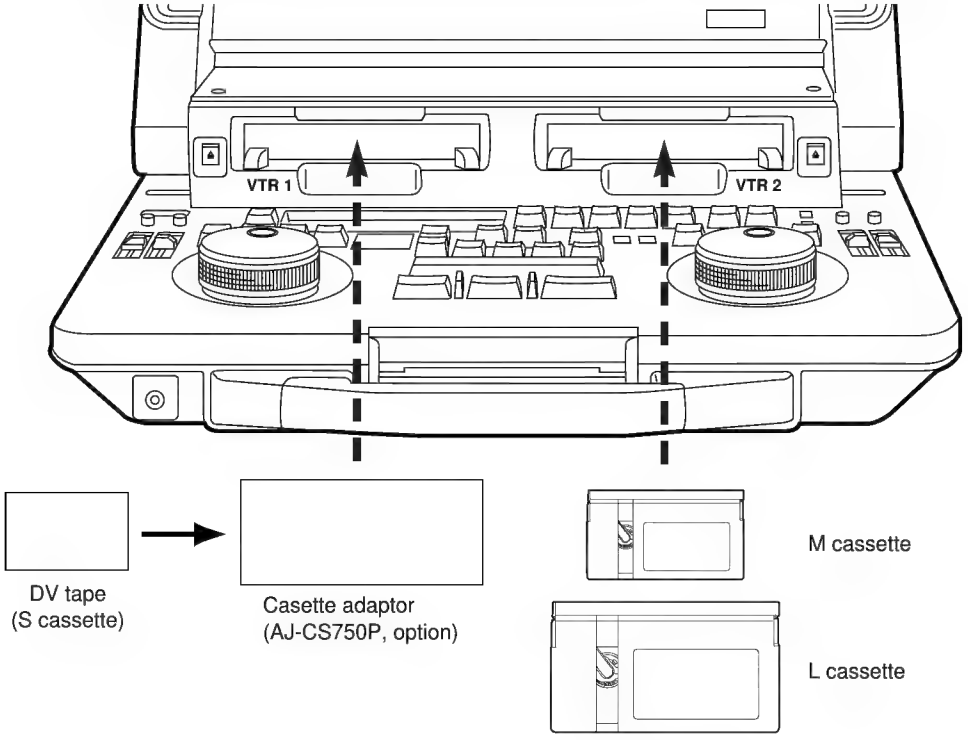


**Notes:**

1. Take care not to catch your fingers in the cover while opening or closing it.
2. Take care not to use this unit on bedding or a carpet.

# COMPATIBLE TAPES

Align the cassette tape with the centre of the loading slot, and push it in gently. It is then loaded automatically.



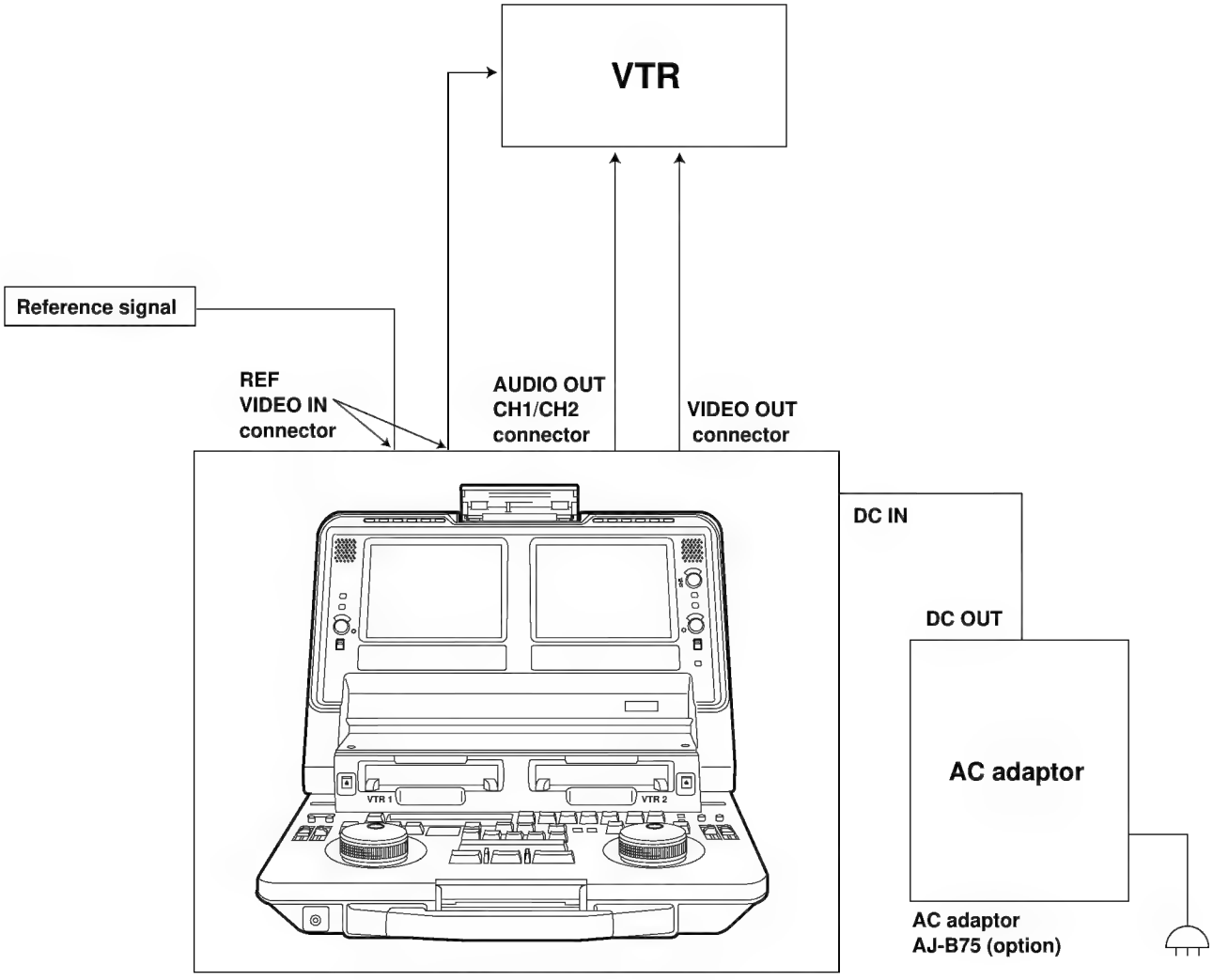

| Cassette type | Description |
|---|---|
| Consumer-use DV cassette (S cassette) | This is exclusively designed for use in consumer-use cassette camera/recorder units. It can be used with the laptop for playback only if the AJ-CS750P cassette adaptor (option) is obtained. If a consumer-use cassette tape is to be used, it must first be loaded into the AJ-CS750P adaptor (optional accessory). However, please note that long-play cassette tapes (80-minute standard/120-minute LP mode) cannot be used. **Use of Panasonic consumer DV cassette tapes is recommended.** Ensure that inserting such a tape directly without using the cassette adaptor may cause trouble. |
| M cassette | Recording/playback tape with a maximum length of 66 minutes (AJ-P12MP, AJ-P24MP, AJ-P33MP, AJ-P46MP, AJ-P66MP) |
| L cassette | Recording/playback tape with a maximum length of 184 minutes (AJ-P34LP, AJ-P66LP, AJ-P94LP, AJ-P126LP, AJ-5P92LP) |

**<Note>**
For AJ-5P92LP cassette tapes, use a VTR supporting DVCPRO (25 Mbps) 184 minutes tapes.

**<Precautions for playing back consumer-use DV tapes/DVCAM tapes>**
- Consumer-use tapes can be used for playback only.
- Use tapes specially designed for DVCPRO applications with this unit. However, if DV tapes or DVCAM tapes are to be used in the playback mode, it is recommended that playback be limited to as short a period of time as possible.
- Tapes recorded in the LP mode cannot be played back.
- Since consumer-use tapes cannot be used for recording, the laptop's functions related to recording as well as its REC and other operations are disabled.
- Consumer tape FF/REW speed is VTR limited to ±32X. Slow motion playback is not possible with consumer cassette tape.
- In order to protect the tape, the maximum STILL TIMER for consumer tape is 10 seconds, and the available time for leaving the tape in STILL mode is set at 1 minute.
- The read disable display for the time code may sometimes appear while consumer-use tape is being used in the search, slow motion or still mode.

## Connections for transmission



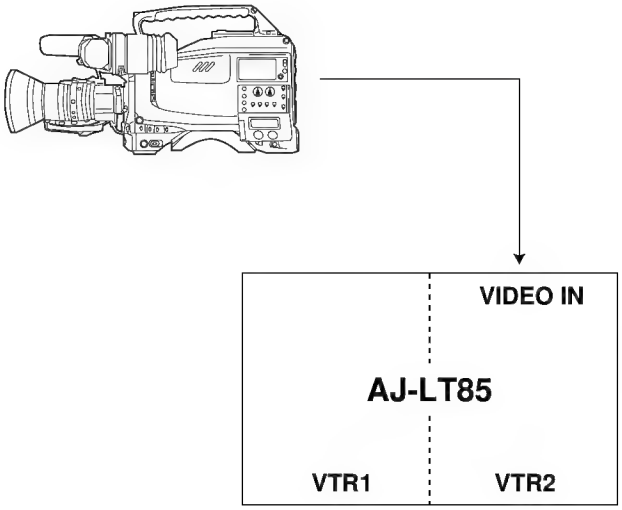



(OPERATION MODE switch: SEPARATE)

## System applications

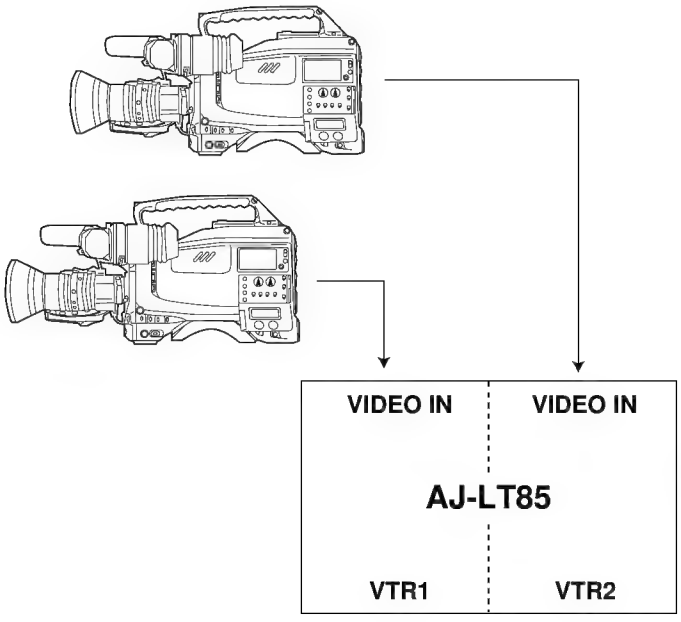
### ■ Backup recording using 2 VTRs

#### 1. Recording the same signal on 2 VTRs




**Switch settings:**
**OPERATION MODE** : SEPARATE
**VTR1 IN SEL** : V2 V+A
**TC MODE** : VTR1; User preference (P-REC, P-FREE)
: VTR2; VTR1 TC
(Time codes synchronized on both VTRs)

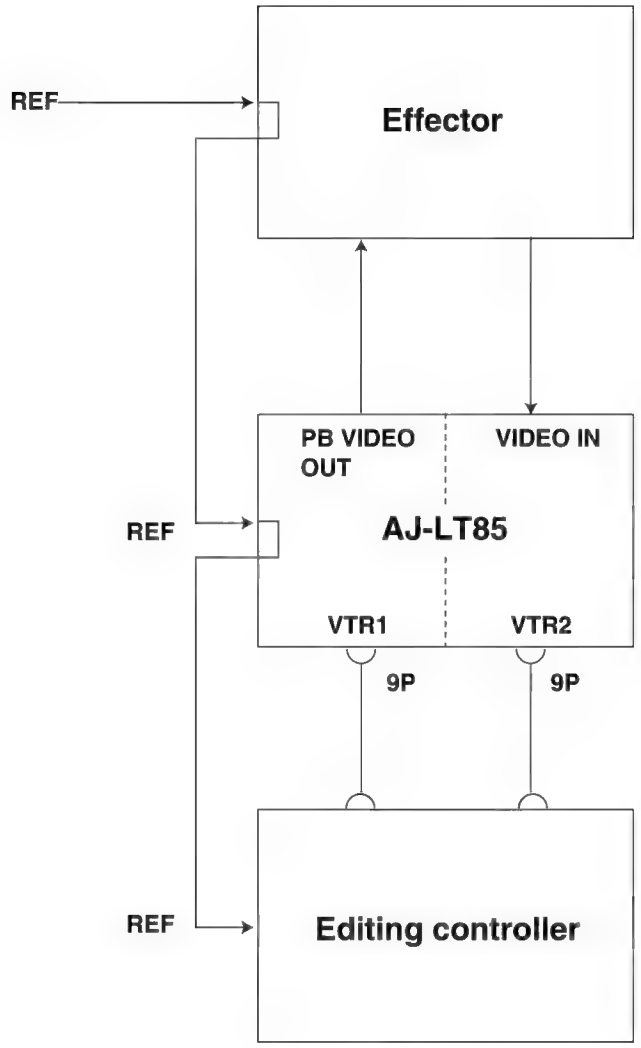
#### 2. Recording different signals on 2 VTRs




**Switch settings:**
**OPERATION MODE** : SEPARATE
**VTR1 IN SEL** : V1 IN
**TC MODE** : VTR1; User preference (P-REC, P-FREE)
: VTR2; VTR1 TC
(Time codes synchronized on both VTRs)

## System applications

### Using the unit with an external effector or controller switch settings



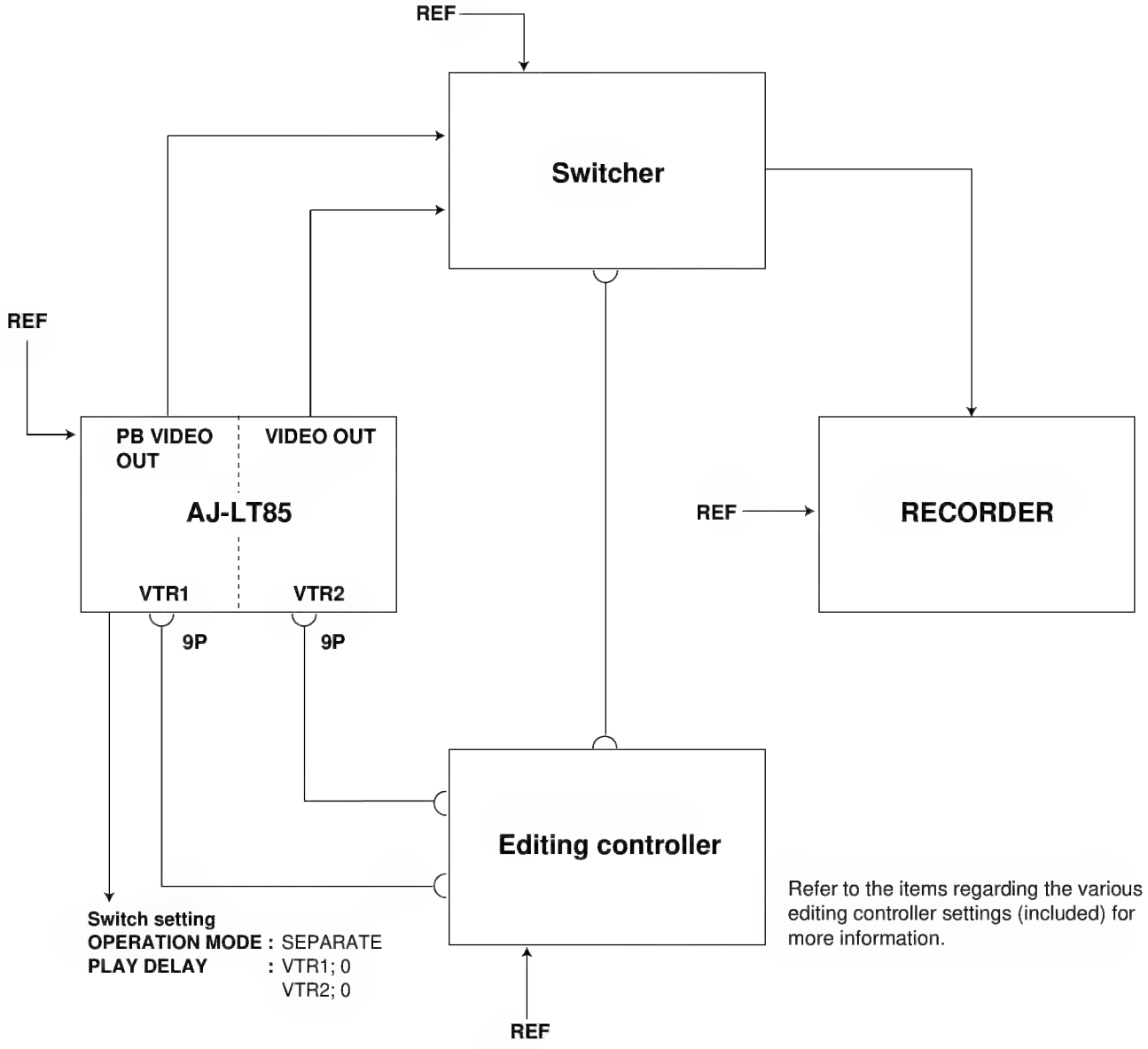

**Switch setting**
**OPERATION MODE** : EXT
**PLAY DELAY** : VTR1; 0
VTR2; 4

Refer to the items regarding the various editing controller settings (included) for more information.

**<Notes>**
- VTR1 cannot be used as the editing recorder.
- Slow motion editing is not supported.

## System applications

### ■ Using two VTRs as source units for AB roll editing

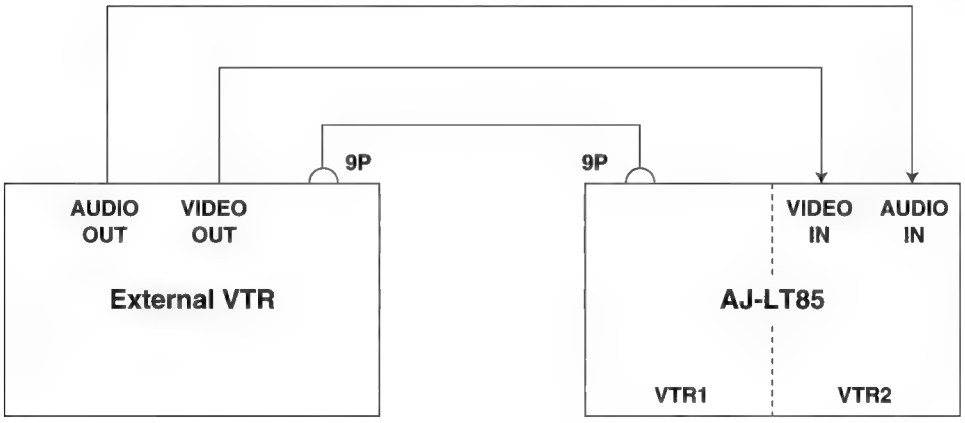



**<Note>**
Slow motion editing is not supported.

# System applications

## When using an external VTR as the editing source unit

- The external VTR can be operated using the VTR1 control buttons of this unit.
- Set the CONTROL switch on the keyboard panel to EXT VTR.
  Regardless of the positions of the OPERATION MODE and AUDIO INPUT SELECT switches, the signals connected to the VTR2 s VIDEO IN and AUDIO IN connectors will be supplied.

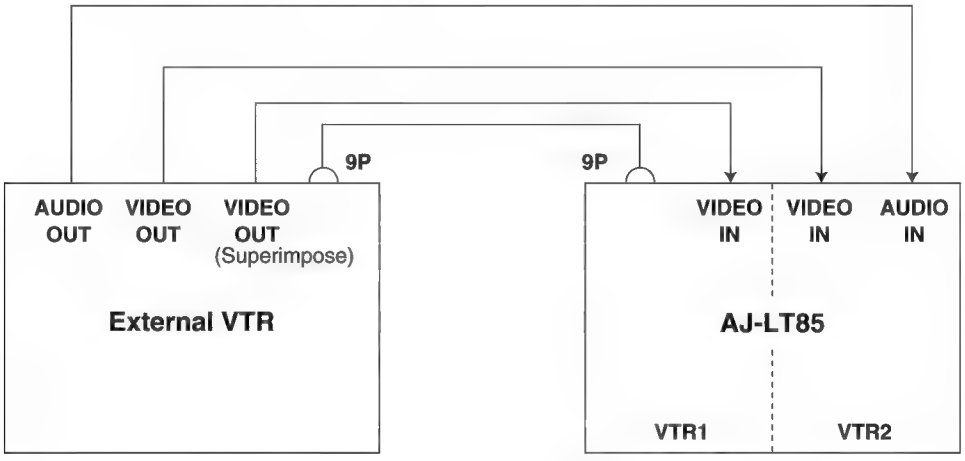



Switch settings
CONTROL: EXT VTR
PLAY DELAY: VTR1: 0
VTR2: 4

**<Notes>**

- It is necessary to change the PLAY DELAY setting when certain types of external VTRs are used.
- The external VTR s signals can be checked on the LCD monitor of VTR1 and through its speaker when V2 V+A is set for set-up menu item No. 105 (VTR1 IN SEL).
- None of VTR1 s on-screen displays (counter, etc.) can be shown when the CONTROL switch is set to the EXT VTR mode.

However, these displays can be shown on the screen of VTR1 using the connections and settings outlined below when an external VTR with a superimpose display function is used.

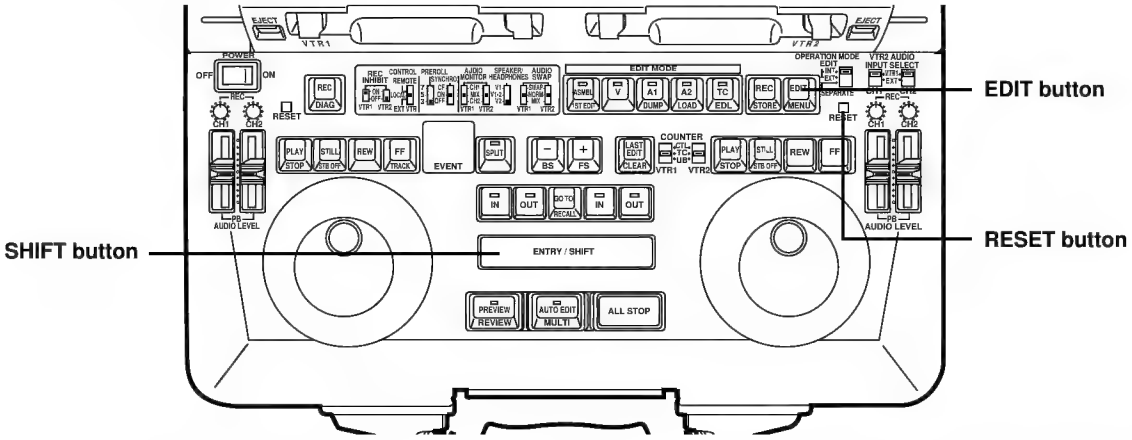



Switch settings
CONTROL: EXT VTR
VTR1 IN SEL (set-up menu item No. 105): V2 A

- The VTR1 s INPUT and REF displays do not appear when the CONTROL switch is set to the EXT VTR mode.

# SET-UP MENU OPERATIONS

The set-up of items other than those set using the selector switches are set on the on-screen menu using the time counter display and search dial.
To perform settings with the on-screen menu, press the MENU (SHIFT+MENU) buttons to establish the set-up mode. The setting contents now appear on the display, and the data settings are stored in the laptop's memory.




To transfer the laptop from the regular mode to the set-up menu mode, press the SHIFT and EDIT buttons together. (This cannot be done by remote control, or when editing or recording.)

### To change a setting:

1. Set the laptop to the jog mode.
   Remember that this procedure cannot be performed in the shuttle mode.
2. Turn the dial and select the item to be set. (The asterisk "*" moves.)
3. While holding down the SHIFT button, turn the dial clockwise or counterclockwise to change the value.
   When the IN or OUT button is pressed while the SHIFT button is held down, the setting contents are decremented by IN and incremented by OUT.
   If the 1ST EDIT, TC PRESET or UB PRESET item is to be selected, operation moves to the column on the left or right by pressing the FF or REW button while the SHIFT button is held down.
   • "TC PRESET" and "UB PRESET" can be selected when set-up menu item No. 507 (TC MODE) has been set to "P-REC" or "P-FREE."

### To view the menu page by page:

Press the FF or REW button.
Operation moves to the next page when the FF button is pressed; it moves to the previous page when the REW button is pressed. (The cursor moves to the first item in each group of 100.)

### To store a setting in the memory:

Press the REC button while the SHIFT button is held down.

### To return to the regular mode from the set-up menu mode:

Press the EDIT button while the SHIFT button is held down.

### User default settings and factory settings

This unit has a memory in which the settings can be entered by the user. The user can enter specific settings, and these settings can be called altogether.
The factory settings can be restored after using the user settings.
TC PRESET and UB PRESET are not entered or called.

**■ To enter changed settings into the user default setting memory**

- Press the MENU (SHIFT + EDIT) button to establish the set-up menu mode.
- Change to the desired settings. (Refer to the above section on how to change the settings.)
- Press the RESET button of VTR2 to display the default setting screen.
- Press the STORE (SHIFT + REC) button to enter the settings.

**■ To return changed settings to the user default settings (loading from the user default setting memory)**

- Press the MENU (SHIFT + EDIT) button to establish the set-up menu mode.
- Press the RESET button of VTR2 to display the default setting screen.
- Press the FF button of VTR2.

**■ To return changed settings to the factory settings (resetting)**

- Press the MENU (SHIFT + EDIT) button to establish the set-up menu mode.
- Press the RESET button of VTR2 to display the default setting screen.
- When the PLAY button of VTR2 is pressed, all the items are reset.
  When the STILL button of VTR2 is pressed, all the items except for SYSTEM are reset.
  When the REW button of VTR2 is pressed, the resetting is canceled.

## BASIC

| Item | | Setting | | Description of setting | VTR 1 | VTR 2 |
|---|---|---|---|---|---|---|
| No. | Item | No. | Item | | | |
| 000 | DISPLAY SEL | 0000<br>0001<br>0002<br>0003<br>0004<br>0005 | TIME<br>T&STA<br>T&RT<br>T&YMD<br>T&MDY<br>T&DMY | This sets the contents of the MONITOR OUT connector and liquid-crystal monitor superimposed display.<br>0: Displays the counter value only.<br>1: Displays the counter value and operation mode.<br>2: The counter value and shooting time are displayed.<br>3: The counter value and shooting date in the sequence of year, month and day are displayed.<br>4: The counter value and shooting date in the sequence of month, day and year are displayed.<br>5: The counter value and shooting date in the sequence of day, month and year are displayed.<br><Note><br>REC DATE or REC TIME is displayed only when a tape shot by a DV/DVCAM camera recorder is played back. | ○ | ○ |
| 001 | LCD SUPER | 0000<br>0001 | OFF<br>ON | This selects the superimposed display on the liquid-crystal monitor.<br>0: A superimposed display does not appear on the monitor.<br>1: A superimposed display appears on the monitor. | | ○ |
| 002 | CHARA TYPE | 0000<br>0001 | WHITE<br>W/OUT | This selects the type of characters for the VIDEO MONI OUT connector superimposed display and set-up menu display, etc.<br>0: White characters appear on a black background.<br>1: White characters with black borders appear. | ○ | ○ |
| 003 | TAPE TIMER | 0000<br>0001 | ±12h<br>24h | This selects whether the 12-hour or 24-hour time system is to be used for the CTL counter display.<br>0: The 12-hour time system is used for the display.<br>1: The 24-hour time system is used for the display. | ○ | ○ |

The underlined number and item are the factory settings.

## OPERATION

| Item | | Setting | | Description of setting | VTR1 | VTR2 |
|---|---|---|---|---|---|---|
| No. | Item | No. | Item | | | |
| 100 | SHTL MAX | 0000<br>0001 | X16<br>X32 | This sets the maximum speed in the shuttle mode.<br>0: 16 times normal tape speed.<br>1: 32 times normal tape speed. | ○ | ○ |
| 101 | FF.REW MAX | 0000<br>0001 | X32<br>X60 | This sets the maximum fast forward and rewind speed.<br>0: 32 times normal tape speed.<br>1: 60 times normal tape speed.<br><Note><br>With the DV format, this speed is 32X normal tape speed regardless of this setting. | ○ | ○ |
| 102 | AUDIO MUTE | 0000<br>0001 | OFF<br>ON | This sets the status while audio signals are output when the mode has changed from STOP or search to PLAY.<br>0: The time taken until the sound is output is reduced.<br>1: The sound is output after the mode is fully established. | ○ | ○ |
| 103 | S/F/R/ EE SEL | 0000<br>0001 | EE<br>TAPE | This sets whether to establish the EE mode or VV mode when the laptop is in the STOP, FF or REW mode.<br>0: EE mode is established.<br>1: VV mode is established. | | ○ |
| 104 | STOP MODE | 0000<br>0001 | REC<br>PB | This selects the mode when VTR1 is in the STOP mode.<br>0: The digital circuits serve as the REC system. The time taken entering REC mode is reduced.<br>1: The digital circuits serve as the PB system. The time taken entering PB mode is reduced. | ○ | |
| 105 | VTR1 IN SEL | 0000<br>0001<br>0002<br>0003 | V1 IN<br>V2 V+A<br>V2 V<br>V2 A | Selects whether V1 IN or V2 IN is to be used for the VIDEO/AUDIO input of VTR1.<br>0: VTR1 IN serves as the VTR1 input.<br>1: VIDEO IN and AUDIO IN of VTR2 serve as the VTR1 input.<br>2: VIDEO IN of VTR2 and AUDIO IN of VTR1 serve as the VTR1 input.<br>3: VIDEO IN of VTR1 and AUDIO IN of VTR2 serve as the VTR1 input. | ○ | |
| 106 | FORMAT SEL | 0000<br>0001<br>0002 | DVCPRO<br>DV<br>DVCAM | This selects the format when an L size cassette is used.<br>0: DVCPRO mode<br>1: DV mode<br>2: DVCAM mode | ○ | ○ |
| 107 | POSTROLL SEL | 0000<br>0001<br>0002<br>0003 | 0.5s<br>1s<br>2s<br>3s | Selects the postroll time (in 1-second increments).<br>0: 0.5 sec.<br>1: 1 sec.<br>2: 2 sec.<br>3: 3 sec. | | ○ |

The underlined number and item are the factory settings.

## OPERATION

| Item | | Setting | | Description of setting | VTR 1 | VTR 2 |
|---|---|---|---|---|---|---|
| No. | Item | No. | Item | | | |
| 108 | HUMID OPE | 0000<br>0001 | OFF<br>ON | This selects whether condensation is to be ignored when it has formed and operation is to be continued.<br>0: Operation is disabled.<br>1: Operation is enabled. Although operation is still possible even when condensation has formed, the unit's operation cannot be guaranteed.<br><Note><br>Since the tape may be damaged or other trouble may occur when "1: Operation is enabled" is selected, "0: Operation is disabled" is normally selected. | | ○ |
| 109 | SEARCH ENA | 0000<br>0001 | DIAL<br>KEY | This selects whether the direct search operation is to be performed.<br>DIAL: Direct search mode<br>KEY: No direct search mode (The search dial is operable in the STILL mode only.) | | ○ |
| 110 | AUTO REW | 0000<br>0001 | OFF<br>ON | This selects whether the tape is automatically rewound to the beginning when the end of the tape is detected in the PLAY, REC, or SHTL modes.<br>0: Transport stops at the end of the tape.<br>1: The tape is automatically rewound to the beginning. | ○ | ○ |
| 111 | ALL STOP SEL | 0000<br>0001 | STOP<br>STILL | This is used to select the mode to which the unit is to be set when the ALL STOP button is pressed.<br>0: The unit is set to the STOP mode.<br>1: The unit is set to the still-picutre mode (SHTL +0.0, JOG STILL). | | ○ |
| 112 | CAP LOCK | 0000<br>0001 | 4F<br>8F | This is used to select the capstan lock mode when the OFF/ON/CF switch has been set to CF.<br>0: 4F mode is established.<br>1: 8F mode is established. | | ○ |

The underlined number and item are the factory settings.

## INTERFACE

| Item | | Setting | | Description of setting | VTR 1 | VTR 2 |
|---|---|---|---|---|---|---|
| No. | Item | No. | Item | | | |
| 200 | ID SEL | 0000<br>0001 | OTHER<br>DVCPRO | This selects the ID information which is to be returned to the controller.<br>0: 21 25H<br>1: The ID (F1 33H) unique to DVCPRO is returned. | ○ | ○ |
| 201 | LOCAL ENA | 0000<br>0001 | DIS<br>ST&EJ | This selects the switches which can be operated on the front panel when the REMOTE/LOCAL switch is at REMOTE.<br>0: None of the switches or buttons can be operated.<br>1: Only the STOP (ALL STOP) and EJECT buttons can be operated. | ○ | ○ |
| 202 | OPTION MODE | 0000<br>0001<br>0002<br>0003 | EDL<br>AMU1<br>AMU2<br>AMU3 | This selects the operation of the RS-232C extended functions.<br>0: For EDL.<br>1: This is used under the VOICE OVER specifications by connecting with the audio memory unit.<br>2: By connecting with the audio memory unit, this executes audio cross channel editing for CH2.<br>3: By connecting with the audio memory unit, this executes audio cross channel editing for CH1. | | ○ |
| 203 | BAUD RATE | 0000<br>0001<br>0002<br>0003<br>0004 | 1200<br>2400<br>4800<br>9600<br>19200 | This sets the baud rate when EDL is set for set-up menu item No.202 (OPTION MODE). | | ○ |
| 204 | DATA LENGTH | 0000<br>0001 | 7<br>8 | This sets the data length when EDL is set for set-up menu item No.202 (OPTION MODE). | | ○ |
| 205 | STOP BIT | 0000<br>0001 | 1<br>2 | This sets the stop bit when EDL is set for set-up menu item No.202 (OPTION MODE). | | ○ |
| 206 | PARITY | 0000<br>0001<br>0002 | NON<br>ODD<br>EVEN | This sets the parity when EDL is set for set-up menu item No.202 (OPTION-MODE). | | ○ |
| 207 | FLOW CONTROL | 0000<br>0001 | NONE<br>RTSCTS | This enables or disables the flow control for the EDL data communication.<br>0: Flow control using RTS/CTS is disabled.<br>1: Flow control using RTS/CTS is enabled. | | ○ |
| 208 | EDL FORMAT | 0000<br>0001 | AGA850<br>CMX340 | This sets the format with which EDL data is to be dumped.<br>0: Format common with Matsushita's AG-A850.<br>1: Format common with the CMX340 editing system. | | ○ |

The underlined number and item are the factory settings.

## EDIT

| Item | | Setting | | Description of setting | VTR 1 | VTR 2 |
|---|---|---|---|---|---|---|
| No. | Item | No. | Item | | | |
| 300 | SERVO REF | 0000<br>0001 | AUTO<br>EXT* | This selects the signal with which the servo is synchronized.<br>0: During recording or editing, the servo is synchronized with the input signal; during playback, it is synchronized with the REF signal.<br>1: The servo is synchronized with the REF signal at all times. | ○ | ○ |
| 301 | PLAY DELAY | 0000<br>0004<br>0015 | 0 (VTR1)<br>4 (VTR2)<br>15 | This sets the PLAY delay time in 1-frame increments.<br><Note><br>When VTR1 or VTR2 is connected to the external unit and controlled from external source, set the PLAY DELAY setting value in accordance with the system connection. | ○ | ○ |
| 302 | AUD EDIT IN | 0000<br>0001 | CUT<br>FADE | This selects how the audio edit IN point is to be linked.<br>0: Cut processing<br>1: Fade processing | | ○ |
| 303 | AUD EDIT OUT | 0000<br>0001 | CUT<br>FADE | This selects how the audio edit OUT point is to be linked.<br>0: Cut processing<br>1: Fade processing | | ○ |
| 304 | BEEP | 0000<br>0001<br>0002<br>0003 | OFF<br>ENTRY<br>ALL 1<br>ALL 2 | This sets whether a confirmation beep is to be output.<br>0: No beep is output.<br>1: A beep is output with entries, errors and warnings.<br>2: A beep is output with entries, errors and warning and when an edit IN or OUT point is passed.<br>3: A confirmation beep is emitted when an ENTRY or EDIT IN point is passed and when an error or warning has occurred. It is not emitted when an EDIT OUT point is passed. | | ○ |
| 305 | AUTO ENTRY | 0000<br>0001<br>0002 | OFF<br>REC<br>ALL | This sets whether the value of the previous edit OUT point is to be registered automatically as the next edit IN point after automatic editing.<br>0: Value is not automatically set.<br>1: Value is automatically set for VTR2 only.<br>2: Value is automatically set for both VTR1 and VTR2. | | ○ |
| 306 | SV-UNLK EDIT | 0000<br>0001<br>0002 | EDIT<br>ABORT1<br>ABORT2 | This selects whether editing is to be suspended when servo lock fails to be engaged.<br>0: Editing is executed rather than suspended.<br>1: Editing is suspended when the servo fails to be engaged during the editing approach section.<br>2: Editing is suspended when the servo fails to be engaged during the editing approach section or after entry into the editing/recording section. | | ○ |

The underlined number and item are the factory settings.

*The EXT setting can be performed only for VTR2.

## EDIT

| Item | | Setting | | Description of setting | VTR 1 | VTR 2 |
|---|---|---|---|---|---|---|
| No. | Item | No. | Item | | | |
| 307 | SYNCHRO EDIT | 0000<br>0001 | OFF<br>ON | This sets whether to suspend editing when phase synchronization is not possible with a ±0 frame accuracy while SYNCHRO is set to ON.<br>0: Phase synchronization is not suspended.<br>1: Phase synchronization is suspended. | | ○ |
| 308 | SYNCHRO | 0000<br>0001 | VTR1<br>VTR2 | This selects the deck to be phase-synchronized.<br>0: VTR1 is phase-synchronized.<br>1: VTR2 is phase-synchronized. | | ○ |
| 309 | EDL AUTO CLR | 0000<br>0001 | OFF<br>ON | This sets whether the first edit is to be cleared and the subsequent edits can be overwritten when the maximum number of edits have been registered.<br>0: Edits cannot be overwritten.<br>1: Edits can be overwritten. | | ○ |
| 310 | AFTER CUE-UP | 0000<br>0001 | STOP<br>STILL | This selects the laptop's mode upon completion of a cue-up operation.<br>0: STOP mode<br>1: Still picture (SHTL+0.0, JOG STILL) mode | | ○ |
| 311 | SPLIT EDIT | 0000<br>0001 | VIDEO<br>AUDIO | This sets the split editing reference.<br>0: The audio edit point is split with the video edit point serving as the reference.<br>1: The video edit point is split with the audio edit point serving as the reference. | | ○ |
| 312 | 1ST EDIT DUR | 0000<br>0001 | 26s<br>T-END | This sets the black burst signal recording duration in the 1ST EDIT mode.<br>0: A black burst signal is recorded for 26 seconds, then the tape is rewound for 3 seconds and stops.<br>The point at which the tape stops is set as the 1ST EDIT PRESET.<br>1: A black burst signal is recorded until the end of the tape or until the ALL STOP button is pressed. If the signal is recorded until the end of the tape, the tape is then rewound automatically to the 1ST EDIT PRESET position. | | ○ |
| 313 | 1ST EDIT | | | This sets the preset value in the first edit mode.<br>00:00:00:00 to 23:59:59:24 | | ○ |

The underlined number and item are the factory settings.

## TAPE PROTECT

| Item | | Setting | | Description of setting | VTR 1 | VTR 2 |
|---|---|---|---|---|---|---|
| No. | Item | No. | Item | | | |
| 400 | STILL TIMER | 0000<br>0001<br>0002<br>0003<br>0004<br>0005<br>0006<br>0007<br><u>0008</u> | 0.5s<br>5s<br>10s<br>20s<br>30s<br>40s<br>50s<br>1min<br><u>2min</u> | This selects the time taken before the tape protection mode is established when the laptop has been left standing in the stop or search STILL (JOG/VAR/SHTL) mode.<br>(Units: s: seconds min: minutes)<br><Note><br>In the case of the DV format, the time will remain at 10 seconds even if a value higher than 10 seconds has been selected. However, operation will last for up to 2 minutes on the selection screen. | ○ | ○ |
| 401 | SRC PROTECT | 0000<br>0001 | STEP<br>HALF | This selects the operation in the tape protection mode when the laptop has been left standing in the STILL mode.<br>0: STEP (STEP FWD in STILL mode)<br>1: Half loading<br><Note><br>When STEP FWD has been selected, operation is automatically transferred to half loading after the laptop has been left standing in the STILL mode for a total of 30 minutes with the DVCPRO format or for a total of 1 minute with the DV format. | ○ | ○ |
| 402 | DRUM STDBY | 0000<br><u>0001</u> | OFF<br><u>ON</u> | This selects whether the drum is to be stopped in the standby OFF mode.<br>0: The drum is stopped.<br>1: The drum keeps rotating. | ○ | ○ |
| 403 | STOP PROTECT | 0000<br>0001 | STEP<br>HALF | This selects the tape protection mode when the unit is left standing in the stop mode.<br>0: Step FWD<br>1: Half-loading<br><Note><br>When step FWD has been selected, the mode will be automatically transferred to half-loading when the unit has been left standing in the stop mode for a total of 30 minutes (or 1 minute for a DV tape). | ○ | ○ |

The underlined number and item are the factory settings.

## TIME CODE

| Item | | Setting | | Description of setting | VTR 1 | VTR 2 |
|---|---|---|---|---|---|---|
| No. | Item | No. | Item | | | |
| 500 | VITC POS-1 | 0000<br>⋮<br>0004<br>⋮<br>0014 | 7L<br>⋮<br>11L<br>⋮<br>21L | This sets the position where the VITC signal is to be inserted. (The same line as that selected for 501:VITC POS-2 cannot be selected.) | ○ | ○ |
| 501 | VITC POS-2 | 0000<br>⋮<br>0006<br>⋮<br>0014 | 7L<br><br>13L<br><br>21L | This sets the position where the VITC signal is to be inserted. (The same line as that selected for 500:VITC POS-1 cannot be selected.) | ○ | ○ |
| 502 | VITC BLANK | 0000<br>0001 | BLANK<br>THRU | This sets whether the VITC data is to be output to the position which has been selected by 500:VITC POS-1 and 501:VITC POS-2.<br>0: VITC data is not output.<br>1: VITC data is output. | ○ | ○ |
| 503 | TCG REGEN | 0000<br>0001<br>0002 | TC&UB<br>TC<br>UB | This selects the signal to be regenerated when the TCG is in the REGEN mode.<br>0: Both the time code and user bit are regenerated.<br>1: Only the time code is regenerated.<br>2: Only the user bit is regenerated. | ○ | ○ |
| 504 | BINARY GP | 0000<br>0001<br>0002<br>0003<br>0004<br>0005<br>0006<br>0007 | 000<br>001<br>010<br>011<br>100<br>101<br>110<br>111 | This sets the status for using the user bit of the time code generated by the TCG.<br>0: NOT SPECIFIED (character set is not used)<br>1: ISO CHARACTER (8-bit character set complying with ISO646 and ISO2022 is used)<br>2: UNASSIGNED-1 (not defined)<br>3: UNASSIGNED-2 (not defined)<br>4: UNASSIGNED-3 (not defined)<br>5: PAGE/LINE (SMPTE262M page/line multiplexing system)<br>6: UNASSIGNED-4 (not defined)<br>7: UNASSIGNED-5 (not defined) | ○ | ○ |
| 505 | TCG CF FLAG | 0000<br>0001 | OFF<br>ON | This selects whether the CF flag of the TCG is to be used.<br>0: CF flag is not used.<br>1: CF flag is used. | ○ | ○ |

The underlined number and item are the factory settings.

## TIME CODE

| Item | | Setting | | Description of setting | VTR 1 | VTR 2 |
|---|---|---|---|---|---|---|
| No. | Item | No. | Item | | | |
| 507 | TC MODE | 0000<br>0001<br>0002<br>0003<br>0004<br>0005 | P-REC<br>P-FREE<br>I-REG<br>E-VITC<br>E-LTC<br>VTR1 TC* | This selects whether the time code generated by the internal TCG or an external time code is to be used.<br>0: Internal TC is set to PRESET and used in the REC RUN mode.<br>1: Internal TC is set to PRESET and used in the FREE RUN mode.<br>2: Internal TC is used in the REGEN mode.<br>3: VITC of input video signals is used in the REGEN mode.<br>4: Time code input LTC is used in the REGEN mode.<br>5: The time code of the sub-code is used in the REGEN mode when the OPERATION MODE switch is in the INT mode. | ○ | ○ |
| 508 | TC PRESET | | | This sets the TCG (time code generator) value.<br>00:00:00:00 to 23:59:59:24 | ○ | ○ |
| 509 | UB PRESET | | | This sets the user bit value.<br>00 00 00 00 to FF FF FF FF | ○ | ○ |
| 510 | REGEN MODE | 0000<br>0001<br>0002<br>0003 | AS&IN<br>ASSEM<br>INSRT<br>SW | Regardless of the set-up menu No. 507 (TC MODE) setting, this sets the I-REGEN mode during assemble editing and/or time code (TC) insert editing (TC rewrite mode).<br>0: The I-REGEN operation is performed during assemble editing and insert editing.<br>1: The I-REGEN operation is performed during assemble editing.<br>2: The I-REGEN operation is performed during insert editing.<br>3: The I-REGEN operation accords with the set-up menu No. 507 (TC MODE) setting. | | ○ |
| 511 | TC JUMP | 0000<br>0001<br>0002<br>0003 | OFF<br>VTR1<br>VTR2<br>ALL | This sets whether TC JUMP is to be enabled.<br>0: TC JUMP is disabled.<br>1: TC JUMP is enabled for VTR1 only.<br>2: TC JUMP is enabled for VTR2 only.<br>3: TC JUMP is enabled for both VTR1 and VTR2.<br><Note><br>When TC JUMP is enabled, the tape is first cued up to the IN point and, using this IN point as a reference, preroll and the approach are then conducted.<br>The TC reference is selected as soon as the IN point is passed and editing and recording are initiated. | | ○ |
| 512 | PHASE CORR | 0000<br>0001 | OFF<br>ON | This selects whether the phase compensation of LTC generated by TCG is to be controlled.<br>0: The phase compensation is not controlled.<br>1: The phase compensation is controlled. | ○ | ○ |
| 513 | V-MON/ TC OUT | 0000<br>0001<br>0002 | V-MON<br>TCOUT1<br>TCOUT2* | This selects whether the video monitor output connector is to be used as the TC output connector.<br>When it is used as the TC output connector, align the phase of the TC signal which is output in the E-E mode with the phase of the video output or input TC signal.<br>0: The connector is used as the video monitor output connector.<br>1: The connector is used as the TC output connector, and in the E-E mode the phase of the TC signal which is output is aligned with the phase of the input TC signal.<br>2: The connector is used as the TC output connector, and in the E-E mode the phase of the TC signal which is output is aligned with the phase of the video output signal. | ○ | ○ |

*The VTR1 TC and TCOUT2 settings can be performed only for VTR2.

## VIDEO

| Item | | Setting | | Description of setting | VTR 1 | VTR 2 |
|---|---|---|---|---|---|---|
| No. | Item | No. | Item | | | |
| 600 | INPUT C KILL | 0000<br>0001 | B/W<br>AUTO | This selects the colour killer processing for the video input signals.<br>0: B/W processing is conducted forcibly.<br>1: Automatic processing is conducted. | ○ | ○ |
| 601 | OUT VSYNC | 0000<br>0001 | N-VF<br>VF | This selects whether the internal sync signal is to be floated so that H is aligned with the video output signal and V is aligned with the video input signal during EE.<br>0: Internal sync signal is not floated.<br>1: Internal sync signal is floated. | | ○ |
| 602 | V-MUTE SEL | 0000<br>0001 | N-MUTE<br>LOW_RF | This selects where the video signals are to be muted during playback under low RF conditions or when the servo lock is disengaged.<br>0: Signals are not muted.<br>1: Signals are muted. | ○ | ○ |
| 605 | FREEZE SEL | 0000<br>0001 | FIELD<br>FRAME | This selects freeze for the still picture either during play or when operation is transferred from play to stop.<br>0: Field freeze<br>1: Frame freeze<br>(Field freeze is set at all times when the laptop is in a mode other than the one mentioned above.) | ○ | ○ |
| 606 | IN FRM DET | 0000<br>0001 | FORCE<br>AUTO | This selects frame detection for the input signals.<br>0: Frame detection is conducted at all times.<br>1: Frame detection is prohibited only with NON-STD signals. | ○ | ○ |

The underlined number and item are the factory settings.

## AUDIO

| Item | | Setting | | Description of setting | VTR 1 | VTR 2 |
|---|---|---|---|---|---|---|
| No. | Item | No. | Item | | | |
| 700 | CH1 IN LV | 0000<br>0001<br>0002 | 4dB<br>0dB<br>–20dB | This selects the audio input (CH1) reference setting. | ○ | ○ |
| 701 | CH2 IN LV | 0000<br>0001<br>0002 | 4dB<br>0dB<br>–20dB | This selects the audio input (CH2) reference setting. | ○ | ○ |
| 702 | CH1 OUT LV | 0000<br>0001<br>0002 | 4dB<br>0dB<br>–20dB | This selects the audio output (CH1) reference setting. | ○ | ○ |
| 703 | CH2 OUT LV | 0000<br>0001<br>0002 | 4dB<br>0dB<br>–20dB | This selects the audio output (CH2) reference setting. | ○ | ○ |
| 704 | EMPHASIS | 0000<br>001 | OFF<br>ON | This sets the emphasis to ON or OFF. | ○ | ○ |
| 705 | REC CUE | 0000<br>0001<br>0002 | CH1<br>CH2<br>CH1+2 | This selects the input signal to be recorded for CUE.<br>0: Audio input CH1 signal<br>1: Audio input CH2 signal<br>2: Audio input CH1 and CH2 mixed signal | ○ | ○ |
| 706 | CUE INSERT | 0000<br>0001 | OFF<br>ON | This selects whether CUE is to be inserted during AUDIO INSERT.<br>0: CUE is not inserted and pre-recorded signals are left.<br>1: CUE is inserted. | | ○ |

The underlined number and item are the factory settings.

## AUDIO

| Item | | Setting | | Description of setting | VTR 1 | VTR 2 |
|---|---|---|---|---|---|---|
| No. | Item | No. | Item | | | |
| 707 | DV OUTPUT | <u>0000</u><br>0001<br>0002 | <u>ST1</u><br>ST2<br>ST1+2 | This selects the audio CH1 and CH2 outputs during DV format playback.<br>0: The CH1 track is output for CH1 and CH2 track for CH2.<br>1: The CH3 track is output for CH1 and CH4 track for CH2.<br>2: The CH1 and CH3 tracks are mixed and output to CH1, and the CH2 and CH4 tracks are mixed and output to CH2. | ○ | ○ |
| 708 | PB FADE | <u>0000</u><br>0001<br>0002 | <u>AUTO</u><br>CUT<br>FADE | This selects how the audio edit points (IN, OUT) are to be processed during playback.<br>0: Processing accords with status during recording.<br>1: Forced cut editing<br>2: Forced fade editing | ○ | ○ |
| 709 | AUDIO SLOW | <u>0000</u><br>0001<br>0002 | <u>PCM</u><br>CUE<br>A-CUE | This sets the audio output mode during slow playback.<br>0: PCM mode: the PCM audio signals are output between –0.43 and +1, and the CUE audio signals are output at other speeds.<br>1: CUE mode: the PCM audio signals are output at the FWD ×1 speed; the cue audio signals are output at any other speed.<br>2: ALL CUE mode: the cue audio signals are output at all speeds including the FWD ×1 speed. | ○ | ○ |
| 710 | SHTL AUDIO | <u>0000</u><br>0001 | <u>OFF</u><br>CUE | This selects whether the cue audio is to be output to LINE OUT in the shuttle mode.<br>0: Cue audio is not output.<br>1: Cue audio is output. | ○ | ○ |
| 711 | AUTO MONI | 0000<br>0001 | V1+V2<br>AUTO | This selects the signal to be output to the speaker/headphone.<br>0: Processing accords with the SPEAKER/HEADPHONES switch.<br>1: The signal of the VTR operated last is output.<br><Notes><br>• If the OPERATION MODE switch set to the “SEPARATE” position, output is fixed at “V1 + V2.”<br>• If the CONTROL switch set to the “REMOTE” or “EXT VTR” position, output is fixed at “V1 + V2.” | | ○ |
| 712 | DV PB ATT | <u>0000</u><br>0001 | <u>OFF</u><br>ON | This selects the output level while a DV tape is being played back.<br>OFF: Output level is not reduced.<br>ON: Output level is reduced. | ○ | ○ |
| 713 | CH1 REC SEL | <u>0000</u><br>0001<br>0002 | <u>CH1</u><br>CH2<br>MIX | This selects the signals to be recorded on CH1.<br>0: CH1 input<br>1: CH2 input<br>2: CH1 input and CH2 input mixed signals | | ○ |
| 714 | CH2 REC SEL | 0000<br><u>0001</u><br>0002 | CH1<br><u>CH2</u><br>MIX | This selects the signals to be recorded on CH2.<br>0: CH1 input<br>1: CH2 input<br>2: CH1 input and CH2 input mixed signals | | ○ |

The underlined number and item are the factory settings.

## SYSTEM

| Item | | Setting | | Description of setting | VTR 1 | VTR 2 |
|---|---|---|---|---|---|---|
| No. | Item | No. | Item | | | |
| 800 | SCH COARSE | <u>0000</u><br>0001<br>0002<br>0003 | <u>0</u><br>90<br>180<br>270 | SCH phase adjustment: in 90-degree units<br>(SCH changes; H phase does not change.) | ○ | ○ |
| 801 | SCH FINE | 0000<br>⋮<br>0128<br>⋮<br>0225 | –128<br><br>0<br><br>127 | SCH phase adjustment: total variable range of +/–45 degrees or more<br>(SCH changes; H phase does not change.) | ○ | ○ |
| 802 | LCD CONT | 0000<br><br>0030<br><br>0060 | –30<br><br>0<br><br>30 | This adjusts the LCD contrast. | ○ | ○ |
| 803 | LCD COLOUR | 0000<br>⋮<br>0030<br><br>0060 | –30<br><br>0<br><br>30 | This adjusts the LCD colour. | ○ | ○ |
| 805 | V IN SEL | <u>0000</u><br>0001 | <u>CMPST</u><br>CMPNT | This selects the video input.<br>0: Composite input<br>1: Component input. | ○ | ○ |
| 806 | V OUT SEL | <u>0000</u><br>0001 | <u>CMPST</u><br>CMPNT | This selects the video output.<br>0: Composite output<br>1: Component output. | ○ | ○ |

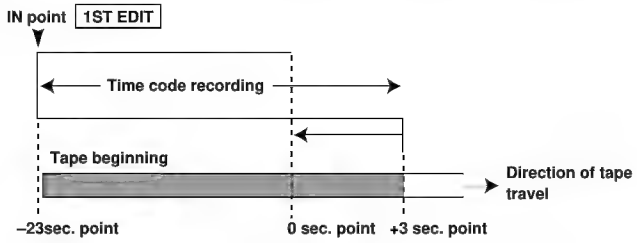
The underlined number and item are the factory settings.

# PREPARATION OF EDITING TAPE

The preparation of the tape for editing differs depending on whether assemble or insert editing is to be performed.
The control signal (CTL) must be recorded on the tape before any attempt is made to edit.

**For assemble editing**, the control signal is recorded at the start of the editing tape. (1st edit)

1. Press the IN button while holding down the ENTRY button to register the IN point of VTR2.
   The registered position is set 23 seconds before the time which is set by the 1ST EDIT preset value. When the 1ST EDIT (SHIFT+ASMBL) buttons are then pressed, recording commences, recording proceeds up to a point 3 seconds beyond the IN point, and the tape is automatically rewound to the 0-second point where it stops.
   When the first edit function is used, black burst signals are always recorded as the video signals and the sound is muted.




**For insert editing**, the control signal must be recorded from the start to the end of the editing tape.

- If the T-END setting is selected for set-up menu item No. 311 (1ST EDIT DUR), 1ST EDIT operation continues to the end of the tape or until the ALL STOP button is pressed. (Black burst and time code signals are recorded.)

### To record the time code together with the video signals onto a new tape:

1. Insert the tape into the recorder.

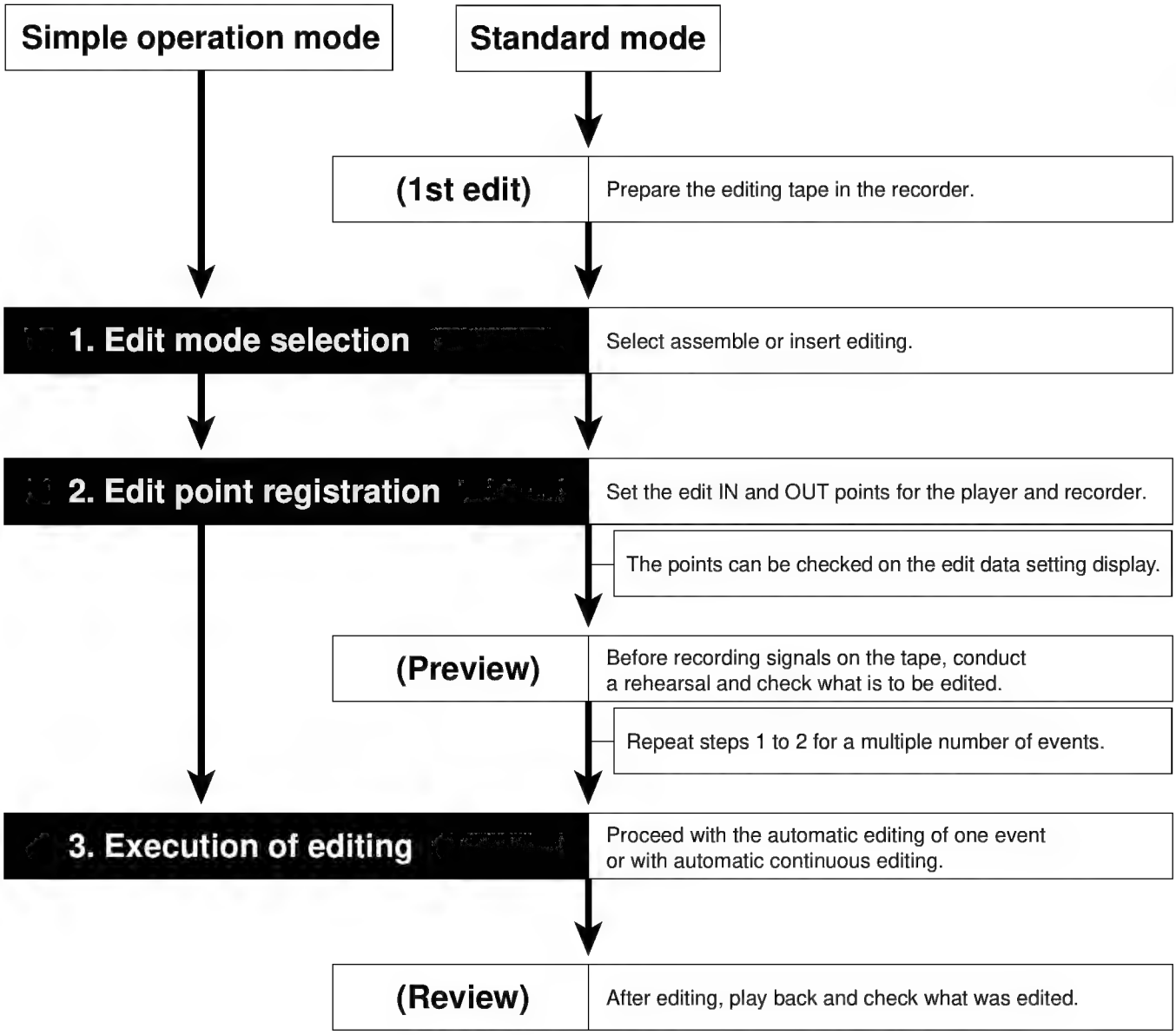
2. While holding down the SHIFT button, press the MENU button to establish the set-up mode.
   1) Select set-up item No. 507 (TC MODE), and set it to P-REC (0000).
   2) Select set-up item No. 508 (TC PRESET), and set the default value of the time code.*
   *To reset the time code to "0," press the RESET button while pressing the SHIFT button.

3. Record the time code.
   When recording the time code onto a new tape, press the PLAY button while holding down the recorder's REC button.

4. Press the ALL STOP button to stop the recording.

# BASIC FLOW OF EDITING OPERATIONS

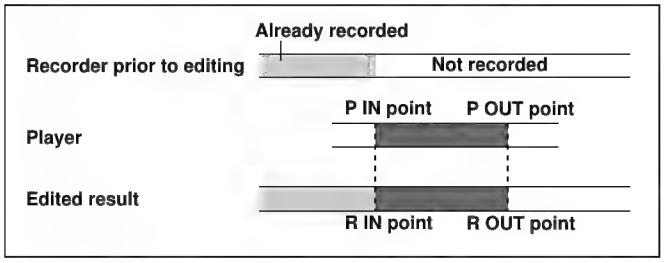
**Editing operations basically involve the following steps.**


Simple operation mode
Standard mode
(1st edit)
Prepare the editing tape in the recorder.
1. Edit mode selection
Select assemble or insert editing.
2. Edit point registration
Set the edit IN and OUT points for the player and recorder.
The points can be checked on the edit data setting display.
(Preview)
Before recording signals on the tape, conduct a rehearsal and check what is to be edited.
Repeat steps 1 to 2 for a multiple number of events.
3. Execution of editing
Proceed with the automatic editing of one event or with automatic continuous editing.
(Review)
After editing, play back and check what was edited.

# TYPES OF EDIT MODES AND ILLUSTRATIONS

## ■ Assemble edit mode

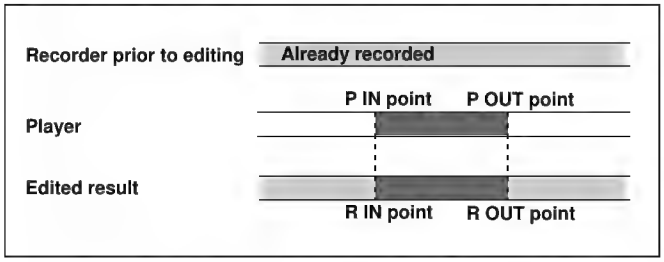
Signals are recorded continuously and successively from the start of usually a new tape (used tapes can also be used). This is the mode commonly used to make master tapes.




- In order to maintain the continuity of the time codes on the tape in the recorder, set set-up menu item No. 507 (TC MODE) to "I-REG". When the setup menu No. 507 is set to "P-REC" or "P-FREE", set set-up menu item No. 510 (REGEN MODE) to "AS&IN" or "ASSEM."

## ■ Insert edit mode

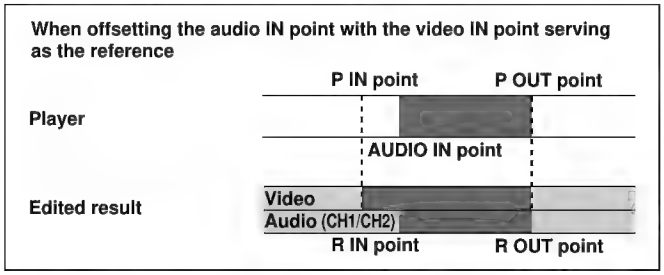
A different source is recorded on part of a pre-recorded tape.
Four types of signals—V (video), A1 (audio CH1), A2 (audio CH2) and TC (time code)—can be recorded separately or altogether. The signals must be recorded on the recorder's tape from beginning to end.



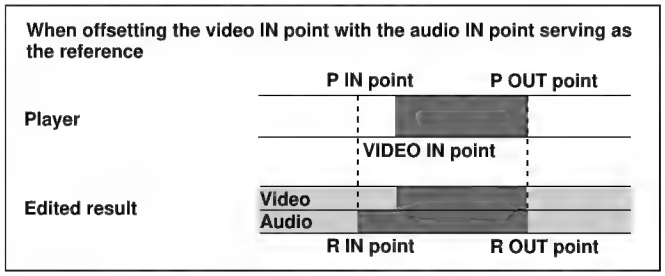

- If it is necessary to maintain the continuity of the time codes on the tape in the recorder during TC insertion, set set-up menu item No. 507 (TC MODE) to "I-REG". When the setup menu No. 507 is set to "P-REC" or "P-FREE", set set-up menu item No. 510 (REGEN MODE) to "AS&IN" or "INSRT."

## ■ Split editing

Split editing involves a technique which offsets the audio edit point from the video edit point or vice versa.

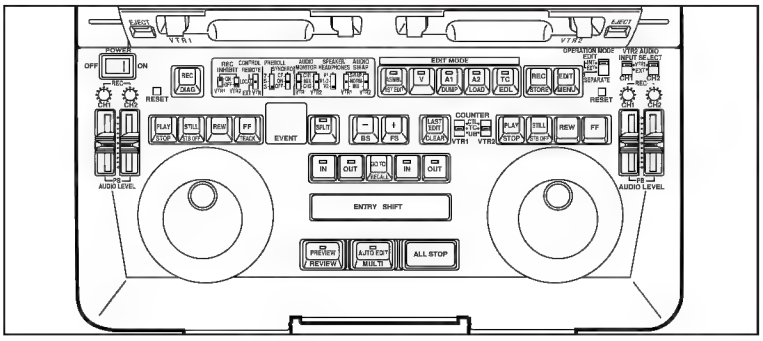



- Set VIDEO for the set-up menu item No. 311 (SPLIT EDIT).
- Alternatively, the audio IN point can be moved ahead of the video IN point.




- Set AUDIO for the set-up menu item No. 311 (SPLIT EDIT).
- Alternatively, the video IN point can be moved ahead of the audio IN point.

## 1. Edit mode selection

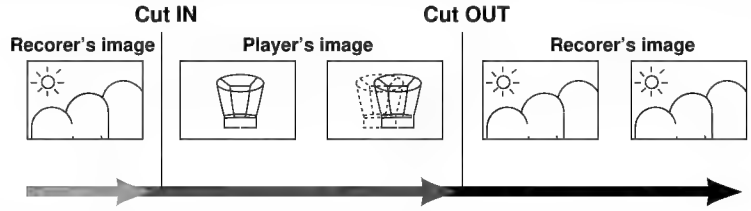


① **For assemble editing:** Press the assemble (ASMBL) button. Record the video, audio (CH1, CH2) and time code simultaneously.

② **For insert editing:** Press the insert buttons (V, A1, A2 and TC). These buttons correspond respectively to the video and audio signals. Press all the buttons for the signals which are to be edited.

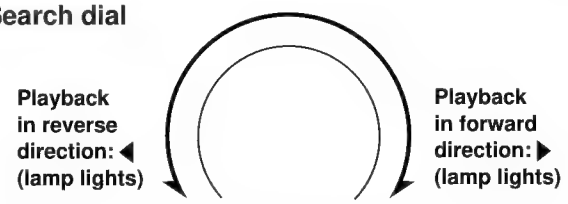
③ To clear a mode, press the same button again.

Cut editing is a way of editing which uses a method to switch in an instant from one screen to another.




* With insert editing, the images and sound can be edited separately.

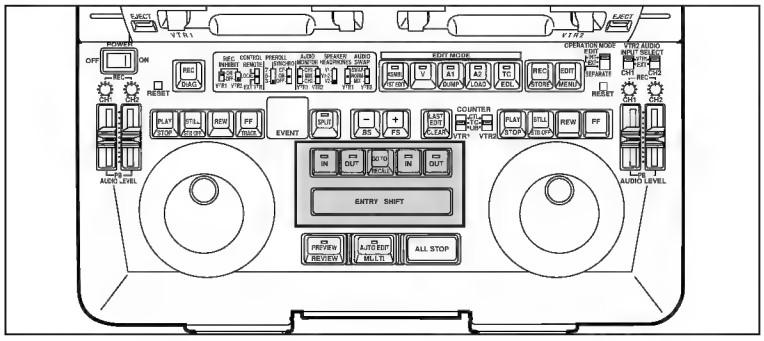
**Search dial**




- Turning the dial without pressing it establishes the shuttle mode: depending on the direction in which the dial is turned and the angle to which it has been turned, a tape can be played back across a range from 16 or 32 times faster than the normal tape speed in the forward direction to 16 or 32 times faster than the normal tape speed in the reverse direction (according to the set-up menu item No.100 setting). A still picture is produced at the centre click-stop position (natural stop position).
- Pushing the dial in and turning it establishes the jog mode: depending on the direction in which the dial is turned and the speed at which it is turned, a tape can be played back across a range from 1 times faster than the normal tape speed in the forward direction to 3 times faster than the normal tape speed in the reverse direction. A still picture is produced when the dial is no longer turned.

## 2. Edit point registration

Search the scene to be edited using the search dial, and register the edit IN and OUT points using the IN and OUT buttons.




1. Play back the tape on the VTR (player or recorder) which is to be used to setting the edit points, and search the desired scene.

2. While holding down the ENTRY button at the desired scene, press the IN or OUT button corresponding to the edit point which is to be set.
   Depending on the edit point now set, the IN or OUT LED lights on the time counter display of the player or recorder. At the same time, if an edit point is not registered, the corresponding LED flashes.

3. Repeat steps 1 and 2 until three of the four IN and OUT points (two for the player and two for the recorder) have been set.
   The edit point registration is completed once the player's IN and OUT points and the recorder's IN point are set.
   The recorder's OUT point is automatically calculated when editing is executed.

### To produce a still picture of the desired scene:

**During normal playback:** press the STILL button.
**During playback in the shuttle mode,** return the search dial to the centre clickstop position.
**During playback in the jog mode,** stop turning the search dial.

### When still picture playback continues beyond a specific period of time:

When the time set in set-up menu item No. 400 (STILL TIMER) has elapsed, operation is automatically transferred to the tape protection mode.

## Edit point checking, revising and clearing

### To check the edit points:

Press the IN or OUT button of the VTR on whose tape the edit points are to be checked. The registered edit point now appears on the counter display.

### To check the edit point image:

Press together the IN or OUT button and GO TO button of the VTR on whose tape the image of the edit points is to be checked. The VTR accesses the registered edit point, and its image appears on the monitor.

- If the VTR does not access the edit point, it means that the edit point has not been registered.

### To check the total time:

**To check the total time of each edit,** press the IN and OUT buttons together. The edit time now appears on the counter.
**To check the total time of the entire editing,** press the TOTAL button.

The total time is displayed while this button is held down.

### To revise an edit point in 1-frame increments

Press the "+" or "–" button while holding down the IN or OUT button.
The "+" button increases the registered edit point in 1-frame increments.
The "–" button decreases the registered edit point in 1-frame increments.

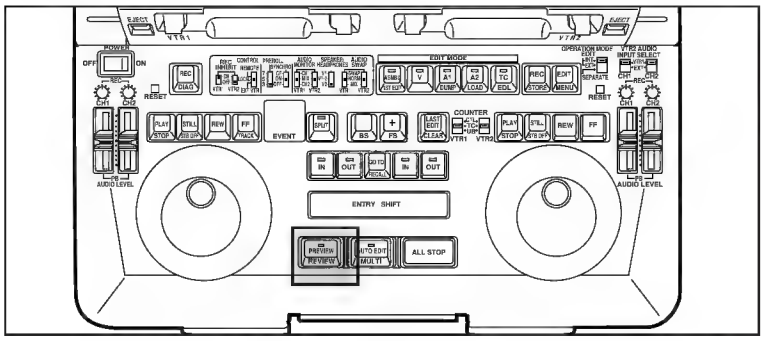
### To clear an edit point

Press the corresponding RESET button while holding down the IN or OUT button of the edit point which is to be cleared.

## (Preview)

Rehearsal playback before proceeding with editing

When the PREVIEW button is pressed, the event just registered (event whose number appears on the display) will be previewed.




**When preview is executed:**

- The recorder's images are played back from the recorder's preroll point to the IN point and from the OUT point onward.
- The images to be edited from the IN point to OUT point appear on the recorder's monitor.
- The tapes in both the player and recorder travel as far as a point 2 seconds after the OUT point and stop.

In the assemble mode, the tape in the recorder travels as far as a point 1 second after the IN point and stops while the recorder's images are not played back even when the player's tape passes the OUT point.

**To start preview again from the beginning while preview is in progress:**

Press the PREVIEW button.

**To reset the OUT point more toward the tape beginning while preview is in progress:**

Press the recorder or player OUT button while holding down the ENTRY button at the scene where the OUT point is to be registered.

- In the insert mode, the recorder's tape position where the above two buttons were pressed is now registered as the new OUT point, and preview is concluded.
- In the assemble mode, the new OUT point is automatically calculated and registered.

**To suspend preview and execute automatic editing:**

Press the AUTO EDIT button.

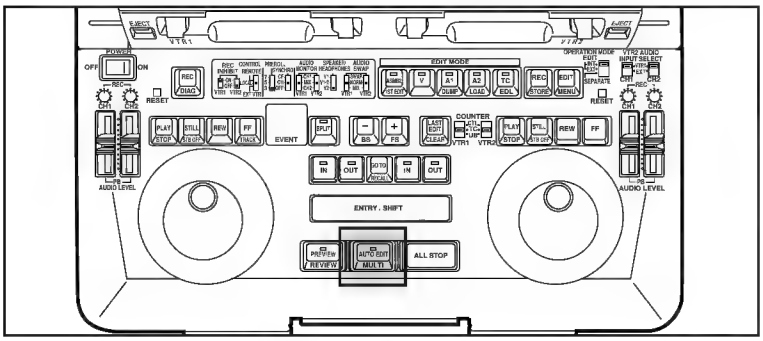
**To recall the contents of the previous preview:**

Press the LAST EDIT button.

Each time this button is pressed, the contents of the current preview and the previous preview are toggled.

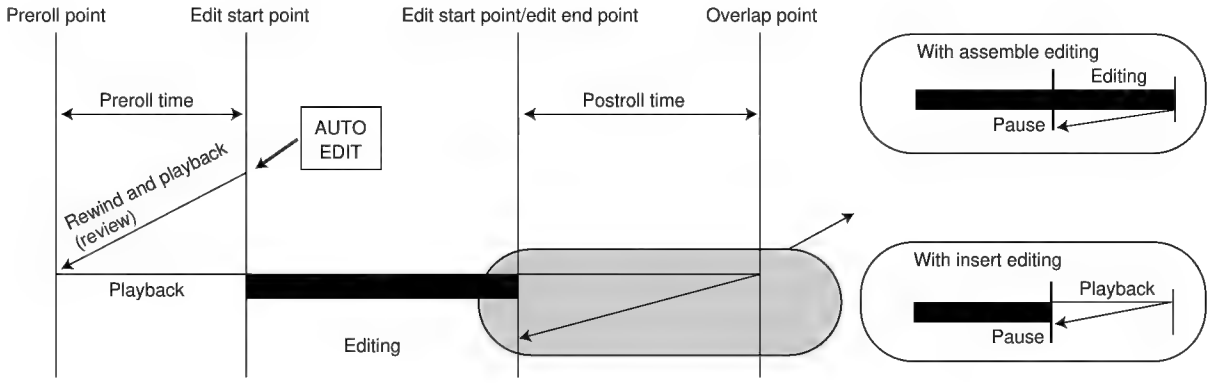
## 3. Editing execution

Once the necessary edit point settings have been registered, one event will be automatically edited if editing is now performed. After editing has been performed, what has been edited can be checked using the "review" function.



**<Editing execution>** (With continuous automatic editing, input the next event without executing editing.)

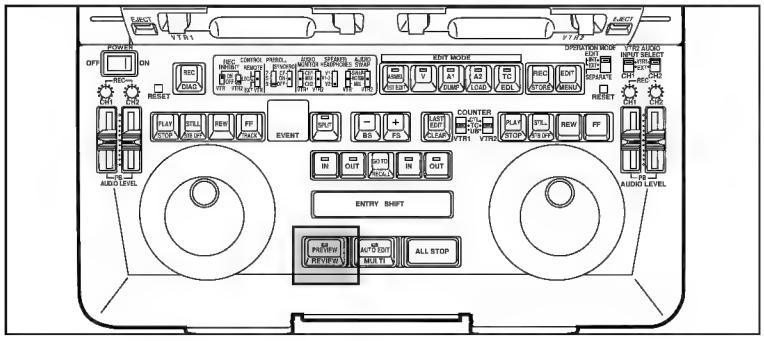
When the AUTO EDIT button is pressed, the automatic editing of one event is commenced.




* After editing has been executed, the EVENT No. is added, and what has been the recorder's edit OUT point is automatically calculated as the edit IN point. [However, this is only when an automatic setting is used for set-up menu item No. 305 (AUTO ENTRY).]
* To end editing at any time, press the AUTO EDIT button. The position where the button was pressed is registered as the OUT point.

## (Review)

When the REVIEW (SHIFT+PREVIEW) button is pressed, already edited event is played back.

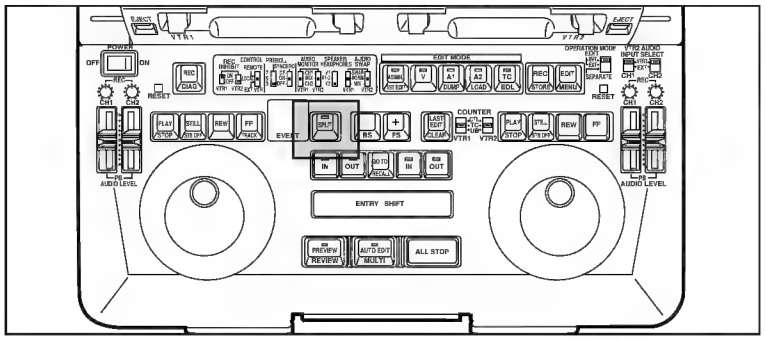



To suspend the review, press the ALL STOP button.

**<Note>**
Review can be performed immediately after editing is completed. Note that review cannot be performed if the unit is transferred to another mode or if one of its function buttons is pressed.

# AUDIO SPLIT EDITING PROCEDURE

In the insert edit mode, the audio IN point can be offset from the video IN point for editing.




1. Set VIDEO for the set-up menu item No. 311 (SPLIT EDIT).
2. Select the channel for insert editing.
3. Register the video edit IN points of the player and recorder.
4. Press the SPLIT button. Check that its lamp has lit. The IN lamps on the time counters of the player and recorder flash.
5. Search the player's audio IN point, and press the player's IN button while holding down the ENTRY button.
   Once the IN point has been registered, the IN lamp has lit.
6. Press the SPLIT button. The SPLIT lamp flashes.
7. Register the OUT point of the player or recorder.
8. Press the PREVIEW button to preview the points.
9. Press the AUTO EDIT button.

### Revising an edit IN point

Check that the SPLIT lamp has lit, and repeat steps 4 and 5.

### Displaying the audio split amount

Press the IN and OUT buttons together while the SPLIT lamp flashes. The difference between the audio split IN point and video IN point is displayed on the time counter.

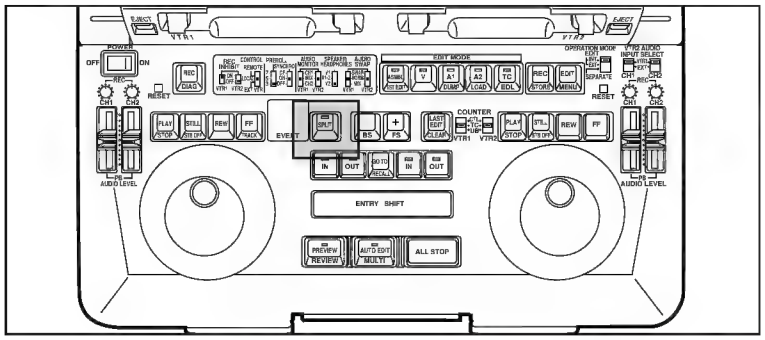
While the SPLIT lamp is lit, the audio split IN and video OUT points cannot be revised simultaneously by pressing the "+" or "–" button.

**<Notes>**

- If the SPLIT lamp flashes, it means that the audio split IN point has been registered.
- Check that VIDEO has been set for the set-up menu item No. 311 (SPLIT EDIT).

# VIDEO SPLIT EDITING PROCEDURE

The video IN point can be offset from the audio IN point during insert editing.




1. Set AUDIO for the set-up menu item No. 311 (SPLIT EDIT).
2. Select the insert editing channel.
3. Enter the audio edit IN points of the player and recorder.
4. Press the SPLIT button.
   Check that the SPLIT button lamp has lit.
   The IN lamps on the player and recorder flash.
5. Search the player's video IN point, and press the player's IN button while holding down the ENTRY button. When the IN point is entered, the IN lamp lights.
6. Press the SPLIT button.
   The SPLIT button lamp changes from the lit to a flashing status.
7. Enter the OUT point of the player or recorder.
8. Press the PREVIEW button to conduct a preview.
9. Press the AUTO EDIT button.

### Correcting an edit IN point

Check that the SPLIT button lamp is lit, and repeat steps 4 and 5.

### Displaying the video split amount

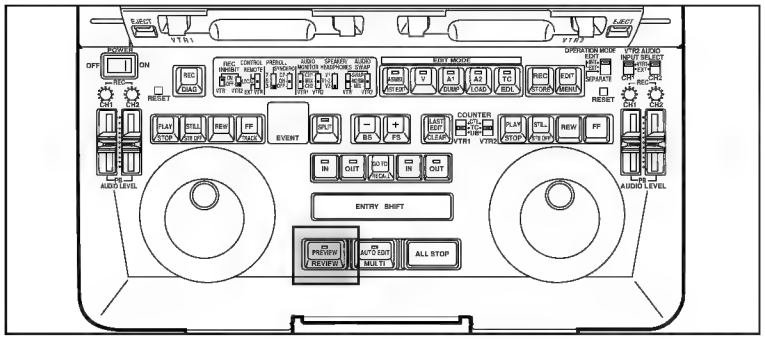
Press the IN and OUT buttons at the same time while the SPLIT lamp is flashing.
The difference between the video split IN point and audio IN point is displayed on the time counter.

The video split IN point and audio OUT point cannot be corrected at the same time by pressing the + or - button while the SPLIT button lamp is lit.

### <Notes>

- The video split IN point is entered while the SPLIT button lamp is flashing.
- Check that AUDIO is set for the set-up menu item No. 311 (SPLIT EDIT).

# EDITING BY EDIT IN POINT SETTING ONLY




1 Search the edit IN points of the player and recorder.

2 Press the PREVIEW button.
The position where the button was pressed is registered as the IN point, and this point is previewed.

3 Press the recorder's OUT button while holding down the ENTRY button at the OUT point position.
The OUT point is registered and the player and recorder stop in about 1 second in the assemble edit mode while and in about 2 seconds in the insert edit mode.

4 Press the AUTO EDIT button.
Editing now commences.

**When executing editing without preview**
Press the AUTO EDIT button instead of the PREVIEW button in step 2. At the position where editing is to be completed, press the AUTO EDIT button.

# STILL PICTURE EDITING

1 Register the IN point and OUT point of the player (VTR1) as the same point.

- These points can be registered as the same point by simultaneously pressing the IN button, OUT button and SHIFT/ENTRY button of the player (VTR1).

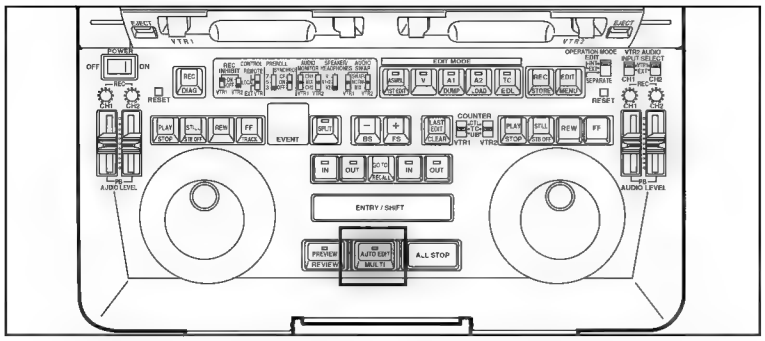
2 Set and register both the IN point and OUT point of the recorder (VTR2).

- Open-ended execution is possible even when the IN point alone is registered.

3 Press the AUTO EDIT button to execute editing.
The still picture of the player (VTR1) at the point registered in step 1 is now edited.

**<Note>**
The still picture editing can be operated only when the OPERATION MODE switch is set to "INT."

# AUTO TAG EDITING




Scenes can be edited in succession simply by registering the player s edit IN point.
Since the recorder s tape is stopped at the edit OUT point, editing can be conducted merely by registering the player s edit IN point.

1. Set set-up item No.305 (AUTO ENTRY) to REC.
2. When the editing is completed, search the player s IN point.
3. Press the AUTO EDIT button.
   Editing now commences.
4. At the edit OUT point, press the AUTO EDIT button.
   Editing is now completed.

# TRACK FUNCTION

This function efficiently sets the player s edit points in accordance with any change which is made in the recorder s edit IN point.

1. Change the IN point of the recorder (VTR2).
2. Press the TRACK [SHIFT + FF (VTR1)] button.
   - The IN point of the player (VTR1) is automatically changed in accordance with the change made in step 1.
   - The colon (:) between the hours and minutes of the on-screen counter cahnges to a dot (.) to indicate that the track mode is now estblished.

     01:23:45:01 → 01.23:45:01
     Normal mode — Track mode

   - The TC (UB or CTL) display on the display tube flashes to indicate that the track mode is now established.
3. When the IN point of recorder (VTR2) is changed in the track mode, the IN point of the player (VTR1) is also automatically changed. When an edit point of the player (VTR1) is next changed, the track mode is released, and the normal mode is restored.

**<Note>**
When "ALL" is selected for the set-up menu item No. 305 (AUTO ENTRY) setting, the IN point of the player (VTR1) will always be changed in accordance with the change made in the IN point of the recorder (VTR2) even when the track mode is not established manually.

# TC JUMP FUNCTION

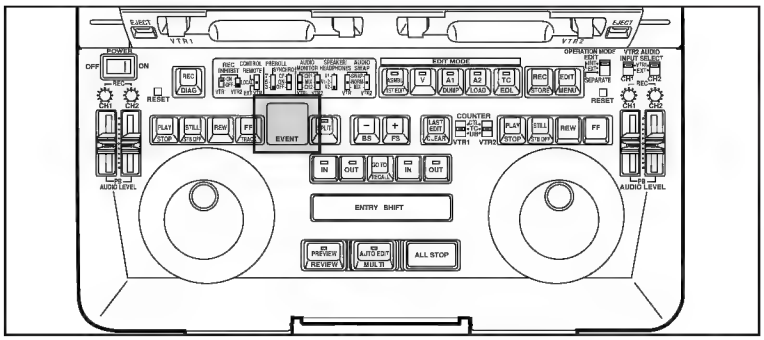
Editing is not normally possible in areas where the time code is discontinuous during the preroll period. However, using the TC JUMP function, editing is performed using CTL as the reference in the preroll period and using TC as the reference after the IN point has been passed (during edit recording). TC is displayed so that the unit can be operated as though TC editing were being performed all the time.



1. Set the menu No. 511 (TC JUMP) to VTR1, VTR2 or ALL.
   (Select the VTR for which the TC JUMP function is to be used).

2. Carry out the regular automatic editing operations.
   **<Note>**
   In the preview, automatic editing or review mode, the tape is first cued up to the IN point, it is prerolled using the CTL value of the IN point as a reference, and it begins its approach. After it has passed the IN point and the edit recording mode is established, editing continues using the TC as the reference.

# EVENT EDITING




*When event editing is performed in the CTL mode, the error may accumulate causing the edit points to deviate considerably. It is therefore recommended that event editing be performed in the TC mode.

## Registering events

Events are registered in sequence from event No.01 to 99, 00.

### How to register events

- **Auto editing**
  Press the AUTO EDIT button.
  After editing has been executed, the numbers are automatically incremented by 1.

- **Registering an event without executing editing**
  Press the STORE (SHIFT+REC) buttons.
  The event numbers are incremented by 1.

### When an unregistered event number (displayed as "n") is registered:

The next event number is displayed.

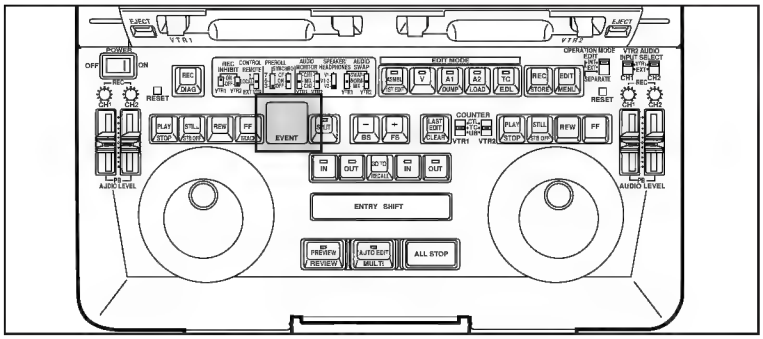
- When an event number is accessed and the edit data is revised, the data which has been revised is registered in the event number concerned.
- When an event is accessed and editing is executed without further ado, the event number remains unchanged.

### When "00" appears as the event number:

This signifies the one hundredth event.
The overwrite mode (all clear) or overwrite prohibited mode is established depending on the EDL auto clear setting (set-up item No.309 "EDL AUTO CLR").

- **When EDL AUTO CLR is OFF**
  The overwrite prohibited mode is established.
  "FULL" appears instead of the event number. When any function button is pressed, the event number is returned to "00" and the status which results when the edit data for event No. 00 is accessed is established.

- **When EDL AUTO CLR is ON**
  The overwrite mode is established.
  The event number appears as "n00," and the registered edit data is cleared. A new event can now be registered.



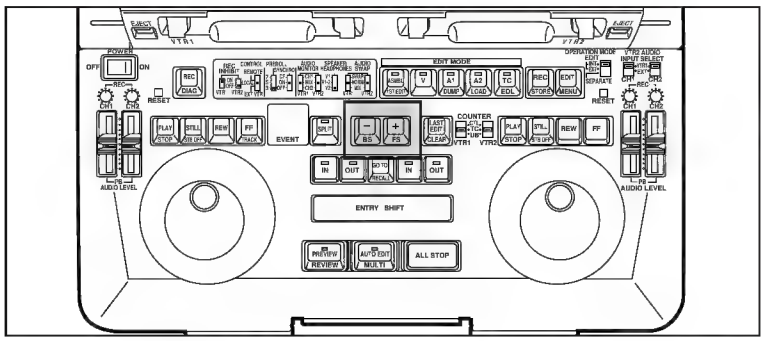



## Calling an event

An event registered in the EDL can be accessed.

- **Accessing an event prior to the event now displayed**
  Press the BS (SHIFT+"–") buttons.
  The event prior to the event displayed is now accessed. To access the desired event, keep pressing the buttons.
  When set-up item No. 309 ("EDL AUTO CLR") is set to ON, event No. "00" is accessed if the event has been overwritten for event numbers exceeding "01."

- **Accessing the event ahead of the event now displayed**
  Press the FS (SHIFT+"+") buttons.
  To access the desired edit, keep pressing the buttons.
  When set-up item No. 309 ("EDL AUTO CLR") is set to ON, event No. "01" is accessed if the event has been overwritten for event numbers exceeding "00."



## Revising and clearing events

The edit data of registered events can be revised or cleared and cleared events can be restored.

- **Accessing a registered event and revising its data**
  1. Press the BS (SHIFT+"–") or FS (SHIFT+"+") buttons.
     When the desired event is displayed, revise its data.
  2. Press the STORE (ENTRY+REC) buttons.

- **Clearing an event**
  1. Press the BS (SHIFT+"–") or FS (SHIFT+"+") buttons.
     When the desired event is displayed, revise its data.
  2. Press the CLEAR (SHIFT+LAST EDIT) buttons.
     "d" now appears in front of the event.

  An event accompanied by "d" can be previewed but it cannot be edited or re-registered.

- **Restoring a cleared event**
  Press the RECALL (SHIFT+Go To) button.
  "d" in the event number is cleared.

## Clearing all the events (initializing the EDL)

Press the CLEAR (SHIFT+LAST EDIT) and ALL STOP buttons.
"n01" appears and the data of all the events is cleared.

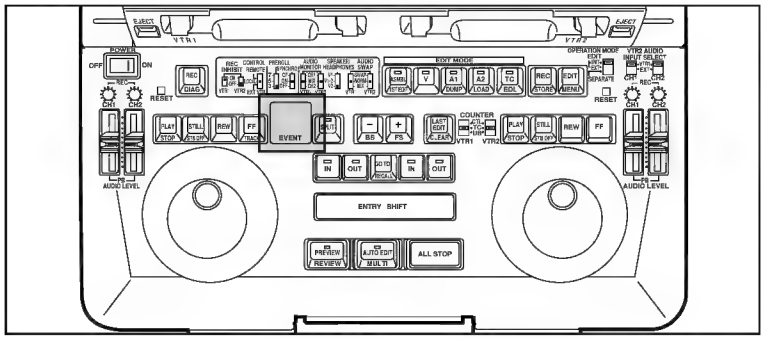
**<Note>**
When all the events are cleared, they cannot be restored to their original condition.

## Executing event editing

1. Press the MULTI (SHIFT+AUTO EDIT) buttons.
   Starting with the event whose number is displayed, the events are now edited on the basis of the registered edit data.

2. To stop the editing at any time, press the ALL STOP button.
   To resume editing, press the MULTI (SHIFT+AUTO EDIT) buttons.
   To execute editing from a particular event, return to the number of that event.

# EDIT DATA MANAGEMENT (EDL)




The registered edit data can be managed collectively in the form of an edit decision list (EDL). Edit data managed by numbers can be accessed as and when necessary. The EDL is retained after the power has been turned off.
Furthermore, when the EDL (SHIFT + TC) button is pressed, the data can be displayed on the LCD screen. To scroll the page containing the displayed data up or down, press the FF or REW button of VTR2.

A maximum of a hundred edits can be managed inside the laptop and accessed as desired. Their data can be changed or cleared.

## Displaying event numbers

Event numbers are displayed using two digits.

| n35 |
|---|

"n": New edit data which has not been registered in the EDL
"d": Edit data which has been cleared from the EDL

### Calling the previously previewed contents

Use the last edit function.
Each time the LAST EDIT button is pressed, the just previewed editing data and the previously previewed editing data are called alternately. (This applies only to the data in the same event.)

- The last edit function does not work if the preview function has not been used.

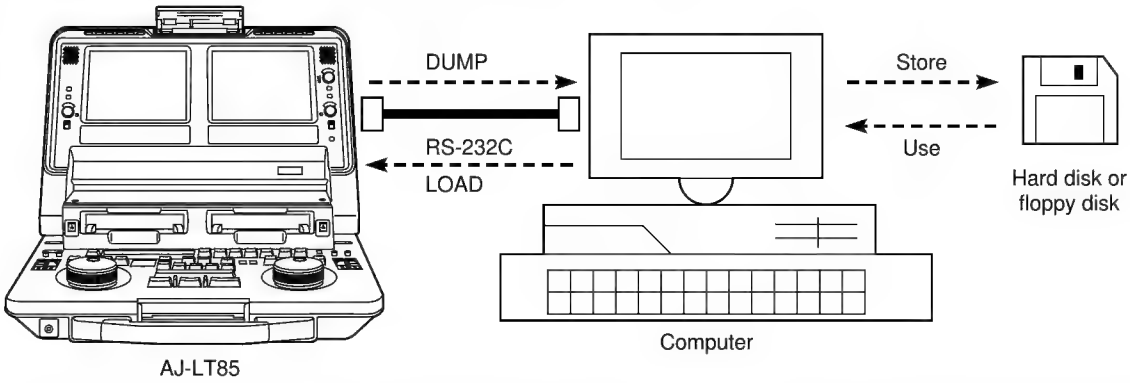
### Clearing all the events (initializing the EDL)

Press the CLEAR (SHIFT+LAST EDIT) and ALL STOP buttons.
"n01" appears and the data of all the events are cleared.

# EDIT DATA DUMPING TO/LOADING FROM AN EXTERNAL DEVICE

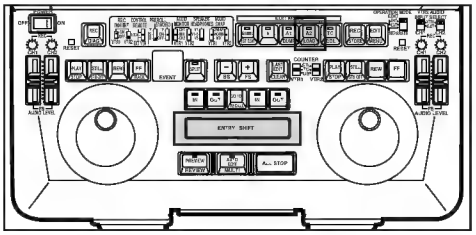
The edit data entered in the EDL memory can be transmitted to an external source via the RS-232C connector. For instance, operation and control can be exercised in a wide range of systems as shown below by uploading data to a computer or downloading data from a computer.

1) Off-line editing is possible, and edit data can be used by an on-line system.
2) Edit data can be stored on a hard disk or floppy disk.
3) The edit data can be checked on the computer CRT screen or in printout form.



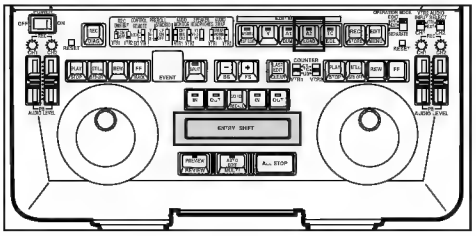

**<Note>**
EDL dumping and loading operations cannot be performed while the CONTROL switch is at the REMOTE or EXT VTR setting.

### Steps taken for dumping



1. Set up the computer or other external unit to receive the data.
2. Press the DUMP (SHIFT + A1) button. The A1 button lamp now flashes, and the event number sent is displayed in the counter area. The format set in the EDL FORMAT set-up item is selected as the output format.
3. The operation is completed when all the edit data in the EDL memory has been transferred. To stop the transfer at any time, press the ALL STOP button.

### Steps taken for loading



1. Press the LOAD (SHIFT + A2) button. The A2 button lamp now flashes.
2. The data is sent from the computer or other external unit. The format in which the data is sent must be the format which was set for set-up menu item No. 208 (EDL FORMAT). The event number being received is displayed in the counter area.
3. The operation is completed when the computer stops transmitting the data or when the EDL memory is full. To stop the transfer at any time, press the ALL STOP button.

**<Notes>**
1. External device settings are required for dumping or loading data.
2. Unless the data is either the corrected or edited EDL data or in a format which is supported by this unit, not only will it be impossible for the data to be received but the unit may malfunction as well. For this reason, users without a detailed knowledge of personal computers or EDL data should refrain from conducting these operations.

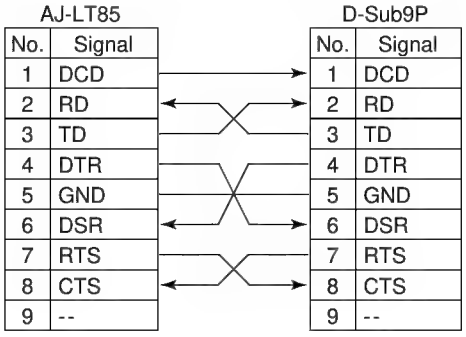
## <Reference>
## External device settings and communication methods

The external device settings and data communication method differ from one device to another. For details on the settings and operations, refer to the manuals accompanying the selected device, its operating system (DOS) and communications programme or make inquiries with the manufacturer of the device connected.

### 1) Ensure that the communication protocol matches the external device settings

This unit's communication protocol can be changed using the set-up menu RS-232C PROTOCOL item.
[Default settings (factory settings): 9600 bps baud rate, 8-bit data length, 1-bit stop bit, and odd parity]
The external device settings are changed using the switches and MODE and SPEED commands in the RS-232C protocol setting programme.
**[Setting example 1]** MODE COM1: BAUD = 9600, PARITY = 0, DATA = 8, STOP = 1
**[Setting example 2]** SPEED RS232C-0 9600 BITS-8 PARITY-ODD STOP-1 NONE
If the changes cannot be made for the external device, ensure that settings of this unit correspond with those of the external device.

Check that EDL is set for the set-up menu item No. 202 (OPTION MODE).
Set set-up item No. 208 (EDL FORMAT) to the input/output format.



(Interlink cable specifications)

**Format selection (common to DUMP and LOAD)**

| Set-up menu item No. | Item | Setting item |
|---|---|---|
| 208 | EDL FORMAT | Selected from AG-A850 or CMX340 |

**Communications parameter settings**

| Set-up menu item No. | Item | Setting item |
|---|---|---|
| 203 | BAUD RATE | 1200/2400/4800/9600/19200 |
| 204 | DATA LENGTH | 7/8 |
| 205 | STOP BIT | 1/2 |
| 206 | PARITY | NON/ODD/EVEN |
| 207 | FLOW CONTROL | NONE/RTSCTS |

**<Notes>**
- The reel number is fixed at 0001.
- GPI, wipe and other functions not featured by this unit are ignored.

### 2) To receive data using the RS-232C connector of an external device

Input COPY AUX_/A or COPYA AUX_ (where "_" represents the filename), and press the DUMP (SHIFT + A1) button. This method can be used with most computers to receive data.

### 3) To send data from the RS-232C connector of an external device

While holding down the LOAD (SHIFT + A2) button, input COPY _/B AUX or COPYA_AUX (where "_" represents the filename). This method can be used with most computers to send data.

## <Reference>
## Concerning the EDL format

Two data formats are available, the AG-A850 format and the CMX340 format, for transferring edit data (EDL) to a personal computer or other external device.

1) **AG-A850:** All the edit data in the EDL memory is sent. This means that the edit data can be perfectly restored when the data which has been output by this unit is loaded again into this unit.
However, the data must be received with EDL AUTO CLR ON selected when events prepared with EDL AUTO CLR ON selected are to be loaded.
Since no distinction is made in the EDL format between the VIDEO reference and AUDIO reference, the VIDEO reference should normally be used for the split edit data.

**[Example of data output]**

```
TITLE: PANASONIC EDITING CONTROLLER AG-A850(AJ-LT85)
-------------------------------------------------------------------------------
EVENT REEL MODE   TYPE   TRANS P-VTR IN    P-VTR OUT   R-VTR IN    R-VTR OUT
0001  0001 ASMBL  C            00:09:45:15 00:09:48:03 00:17:32.15 00:17:35.03
0002  0001 VA12   C            00:09:48:03 00:09:55:17 00:17:35.03 00:17:42.17
0003  AUDIO SPLIT     REEL 0001            00:10:10:20
0003  0001 VA12   C            00:09:55:23 00:10:12:06 00:17:42.22 00:17:59.05
0004  0001 VA12   C            00:10:12:10 00:10:17:21 00:17:59.10 00:18:04.23
0005  0001 ASMBL  C            00:10:17:21 00:10:22:23 00:18:04.13 00:18:09.15
0006  0001 ASMBL  C            00:10:22:23 00:10:24:13 00:18:09.20 00:18:11.10
0007  AUDIO SPLIT     RECORDER             00:18:14.19
0007  0001 ASMBL  C            00:10:24:13 00:10:31:16 00:18:11.15 00:18:18.18
0008  0001 ASMBL  C            00:10:35:15 00:10:35:15 00:18:18.18 00:18:27.21
0008       SPEED  REEL 0001    000         00:10:35:15
0009  0001 ASMBL  C            00:10:35:16 00:10:35:16 00:18:27.21 00:18:39.00
0009       SPEED  REEL 0001    000         00:10:35:16
0010  0001 ASMBL  C            00:10:41:22 00:10:42:11 00:18:39.00 00:18:39.19
0011D 0001 ASMBL  C            00:10:42:11 00:10:44:00 00:18:39.19 00:18:41.08
0012D 0001 ASMBL  C            00:10:44:00 00:10:45:15 00:18:41.08 00:18:42.23
0013  AUDIO SPLIT     REEL 0001            00:10:48:11
0013  0001 ASMBL  C            00:10:50:05 00:10:51:10 00:18:42.18 00:18:43.23
0014  0001 ASMBL  C            00:10:51:10 00:10:56:18 00:18:43.28 00:18:49.06
0015  0001 VA12T  C            00:10:56:18 00:11:00:11 00:18:49.00 00:18:52.23
0016  0001 VA12   C            00:11:00:06 00:11:04:22 00:18:52.24 00:18:57.10
-------------------------------------------------------------------------------
```

Player IN point
Player OUT point
Recorder IN point
Recorder OUT point

Effect — C: cut ("cut" is the only effect available with this unit)
Editing mode — VA12: insert editing; ASMBL: assemble editing
Reel No. — 0001 ("0001" is the only reel number available with this unit)
Event number — D: delete event

The following restrictions apply when data edited by the AG-A850 is input to this unit.

1. **Event numbers**
   The event numbers are ignored, and one hundred events are received in sequence starting with the first one.
2. **Reel numbers**
   All reel numbers are received as "0001."
3. **Editing mode**
   A3 and A4 are ignored.
4. **Effect type**
   Only cut editing events are received.
5. **Slow-motion editing**
   Only slow-motion editing events with speed data 0 (STILL) are received.

The following restrictions apply when data edited by this unit is input to the AG-A850.

1. **Editing mode**
   TC inserts are ignored.

2) **CMX340:** This format is shared with the CMX340. Some data is converted so that the edit data is not perfectly restored even when dumped data is loaded again.

1. **Event numbers**
   Deleted event numbers are filled in for transmission. Event numbers are ignored during reception, and one hundred events are received in sequence starting with the first one.
2. **Reel numbers**
   All reel numbers are received as "0001."
3. **Editing mode**
   Assemble editing is converted into insert editing (V, A1, A2) for output.
4. **Effect type**
   Only cut editing events are received.
5. **Slow-motion editing**
   Only slow-motion editing events with speed data 0 (STILL) are received.
6. **Audio split editing**
   All audio split edit events are received as events entered using the recorder as the reference.

# AUDIO RECORDING SWAP FUNCTION (VTR2 only)

This function enables CH1 input, CH2 input or CH1/CH2 mix to be selected as the audio signals to be recorded on CH1 and CH2 of VTR2.
It makes it possible to record signals from an external microphone, which has been connected to CH2, on CH1.
It is also useful for internal editing from VTR1 to VTR2.



## 1 The signals to be recorded on CH1 can be selected by changing the setting of setup menu No. 713 (CH1 REC SEL).

- The level of the input channel signals can be adjusted using the recording level control.
  When CH2 was selected on setup menu No. 713, use the CH2 recording level control for the adjustment.
- The level of the channel signals to be recorded can be monitored on the level meter.
  Use the CH1 meter to check the signals to be recorded even when CH2 was selected on setup menu No. 713.
  (However, use the CH2 meter to check the input signals with EXT CHECK.)
- When inserting the audio signals, select the channel on which the signals are to be recorded.
  Select A1 (CH1) for insert recording even when CH2 has been selected on setup menu No. 713.

| Setup menu No. 713 | Audio signals to be recorded on CH1 | Recording level control | Level meter | Insert bit |
|---|---|---|---|---|
| CH1 | CH1 input audio signals | CH1 | CH1 | A1 |
| CH2 | CH2 input audio signals | CH2 | | |
| MIX | CH1 and CH2 mixed audio signals | CH1/CH2 (mixing ratio variable) | | |

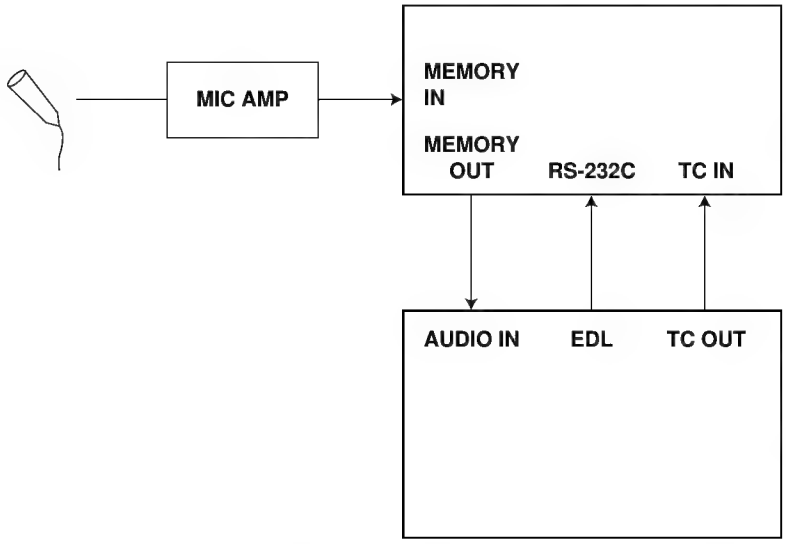
## 2 The signals to be recorded on CH2 can be selected by changing the setting of setup menu No. 714 (CH2 REC SEL).

- The level of the input channel signals can be adjusted using the recording level control.
  When CH1 was selected on setup menu No. 714, use the CH1 recording level control for the adjustment.
- The level of the channel signals to be recorded can be monitored on the level meter.
  Use the CH2 meter to check the signals to be recorded even when CH1 was selected on setup menu No. 714.
  (However, use the CH1 meter to check the input signals with EXT CHECK.)
- When inserting the audio signals, select the channel on which the signals are to be recorded.
  Select A2 (CH2) for insert recording even when CH1 has been selected on setup menu No. 714.

| Setup menu No. 714 | Audio signals to be recorded on CH2 | Recording level control | Level meter | Insert bit |
|---|---|---|---|---|
| CH1 | CH1 input audio signals | CH1 | CH2 | A2 |
| CH2 | CH2 input audio signals | CH2 | | |
| MIX | CH1 and CH2 mixed audio signals | CH1/CH2 (mixing ratio variable) | | |

# CONNECTIONS WITH THE AJ-YA752 AUDIO MEMORY UNIT

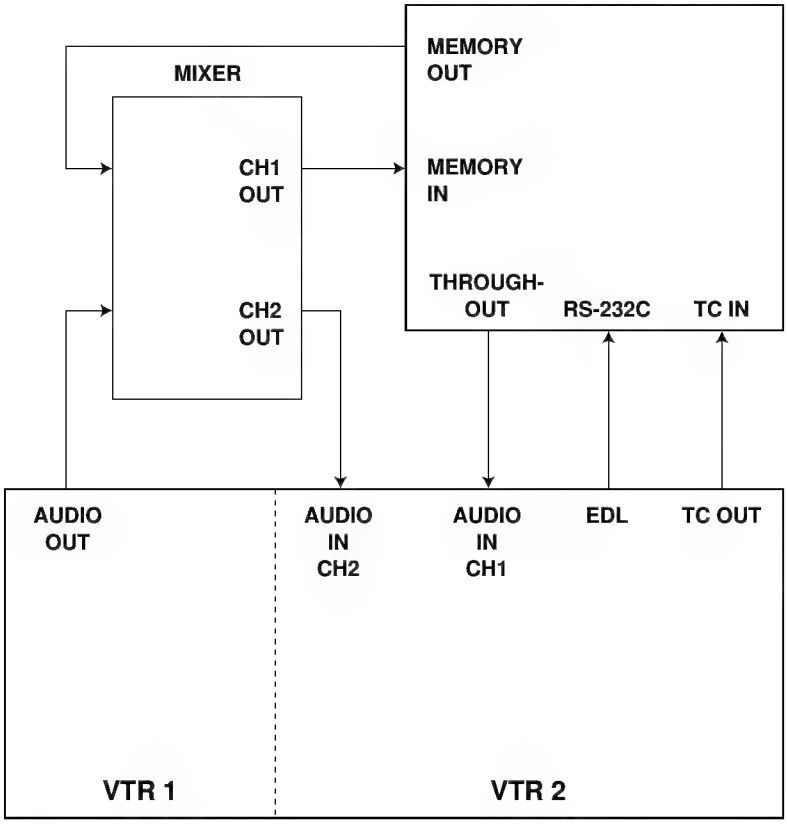
Sound recordings can be made without a time lag while playing back pictures (voice-over) when the AJ-YA752 audio memory unit is used in combination with this unit.




**AJ-YA752**
**Setting**
**OPERATION MODE:** VOICE OVER

**AJ-LT85 (VTR2)**
**Settings**
**OPERATION MODE:** SEPARATE
**V-MON/TC OUT:** TC OUT 2
**OPTION MODE:** AMU1
**TC MODE:** I-REG

- Cross-fade editing of sound is enabled by using this unit in combination with an audio mixer and audio memory unit.
- When recording cross-faded audio signals on CH2
  (When recording these signals on CH1, reverse the CH1 and CH2 connections, and set OPTION MODE to AMU3.)




**AJ-LT85**
**Settings**
**OPERATION MODE:**
**V-MON/TC OUT:** TC OUT 2
**OPTION MODE:** AMU2
**TC MODE:** I-REG

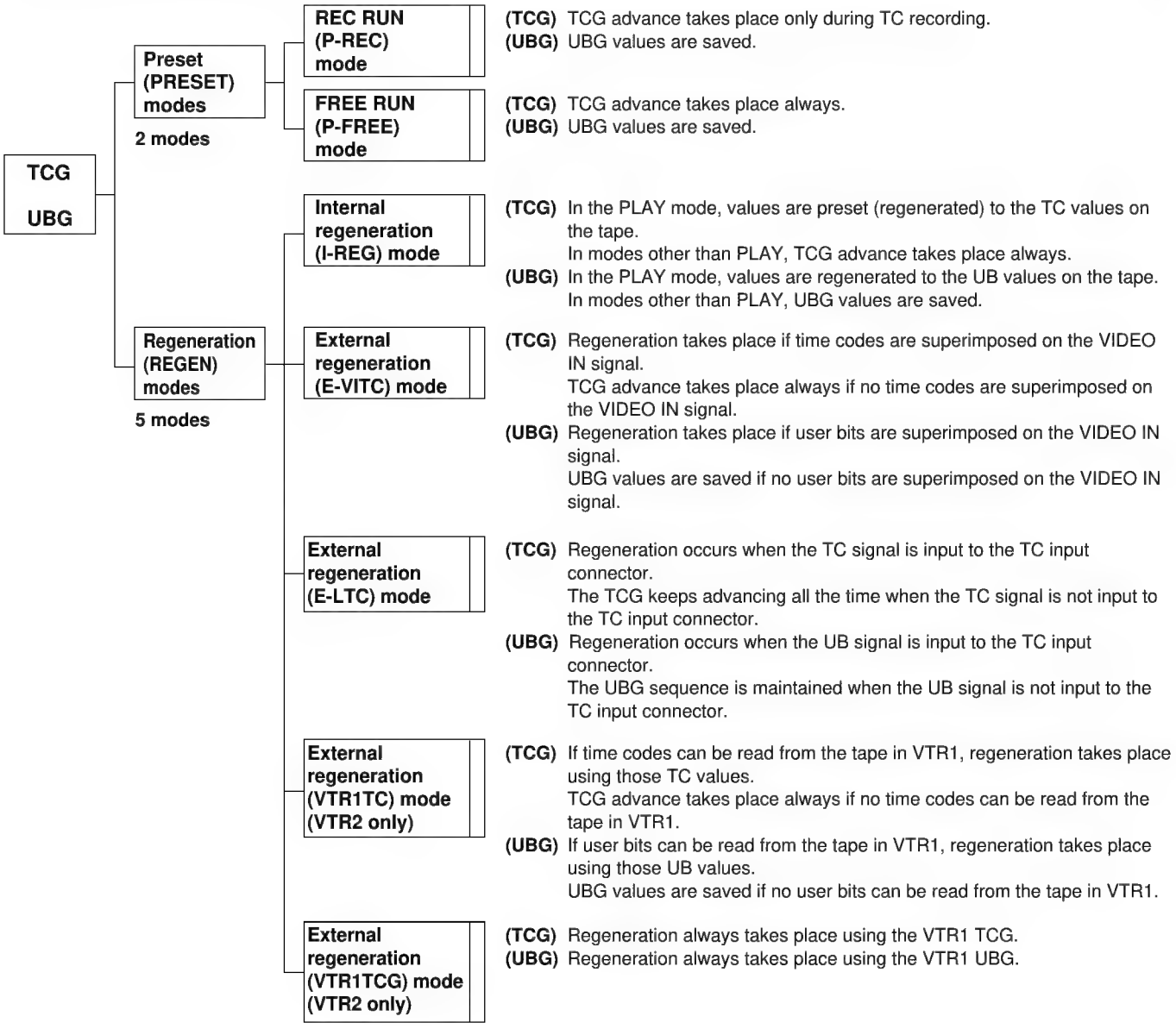
- For further details, refer to the operating instructions accompanying the AJ-YA752 audio memory unit.

**<Note>**
The audio memory unit cannot be used while the CONTROL switch is at the REMOTE or EXT VTR setting.

## Time code generator (TCG) and user bit generator (UBG) modes

The time code generator (TCG) and user bit generator (UBG) have two main modes: PRESET and REGEN.
Within the PRESET mode, where is a REC RUN mode and a FREE RUN mode. Within the REGEN mode, where is an internal regeneration mode and four external regeneration modes.

Details of the various modes are provided below.


TCG
UBG
Preset (PRESET) modes
2 modes
REC RUN (P-REC) mode
(TCG) TCG advance takes place only during TC recording.
(UBG) UBG values are saved.
FREE RUN (P-FREE) mode
(TCG) TCG advance takes place always.
(UBG) UBG values are saved.
Regeneration (REGEN) modes
5 modes
Internal regeneration (I-REG) mode
(TCG) In the PLAY mode, values are preset (regenerated) to the TC values on the tape.
In modes other than PLAY, TCG advance takes place always.
(UBG) In the PLAY mode, values are regenerated to the UB values on the tape.
In modes other than PLAY, UBG values are saved.
External regeneration (E-VITC) mode
(TCG) Regeneration takes place if time codes are superimposed on the VIDEO IN signal.
TCG advance takes place always if no time codes are superimposed on the VIDEO IN signal.
(UBG) Regeneration takes place if user bits are superimposed on the VIDEO IN signal.
UBG values are saved if no user bits are superimposed on the VIDEO IN signal.
External regeneration (E-LTC) mode
(TCG) Regeneration occurs when the TC signal is input to the TC input connector.
The TCG keeps advancing all the time when the TC signal is not input to the TC input connector.
(UBG) Regeneration occurs when the UB signal is input to the TC input connector.
The UBG sequence is maintained when the UB signal is not input to the TC input connector.
External regeneration (VTR1TC) mode (VTR2 only)
(TCG) If time codes can be read from the tape in VTR1, regeneration takes place using those TC values.
TCG advance takes place always if no time codes can be read from the tape in VTR1.
(UBG) If user bits can be read from the tape in VTR1, regeneration takes place using those UB values.
UBG values are saved if no user bits can be read from the tape in VTR1.
External regeneration (VTR1TCG) mode (VTR2 only)
(TCG) Regeneration always takes place using the VTR1 TCG.
(UBG) Regeneration always takes place using the VTR1 UBG.

## Time codes

The time code signals generated by the TCG (time code generator) are recorded on the tape and read by the TCR (time code reader). The time codes indicate the tape's absolute value in increments of hours, minutes and seconds.

## User bit

The user bit is a 32-bit (8-digit) information frame contained in the time code signals which is made available to the user. The figures 0 to 9 and the letters ABCDEF can be used for this bit.

## Time code generator (TCG) and user bit generator (UBG) mode setting

The set-up menu is used to make time code generator (TCG) and user bit generator (UBG) settings.
For details on using the set-up menu, please refer to the TIME CODE setting (see pages 30 and 31) item numbers 503, 507, and 510. Also, the OPERATION MODE switch (see CONTROLS AND THEIR FUNCTIONS on page 8), which is one of the switches on the front keyboard, is used to make settings.

### Setting the mode of the time code generator (TCG) and user bit generator (UBG)

1. Set the VTR to the stop mode.
2. Switch to the set-up menu.
3. Set item No. 503 (TGN REGEN), item No. 507 (TC MODE), and item No. 510 (REGEN MODE) to match the desired mode. Use the OPERATION MODE switch to make selections.
   (Refer to the TCG and UBG Mode Table on the following page for more information on setting items.)
4. To use TCG CF (colour framing) flags, set item No. 505 (TCG CF FLAG) to ON (0001).
5. To use TCG special bit flags, set item No. 504 (BINARY GP).

**<Note>**
The settings for item No. 505 (TCG CF FLAG) and item No. 504 (BINARY GP) are valid only if the P-REC mode or P- FREE mode (which are listed in the TCG and UBG Mode Table on the following page) have been selected, or during first edit operation.

### Presetting the time code generator (TCG) and user bit generator (UBG) values

1. Set the VTR to the stop mode.
2. Switch to the set-up menu.
3. Set item No. 508 (TC PRESET) and item No. 509 (UB PRESET) to the desired values.

**<Note>**
If the P-REC mode or P-FREE mode (which are listed in the TCG and UBG Mode Table on the following page) have been selected, settings can be made for item No. 508 (TC PRESET) and item No. 509 (UB PRESET).

**<Note>**
If the unit is controlled via the external REMOTE terminal (9-pin) in order to perform editing, editing may take place in the MANUAL EDIT mode rather than the AUTO EDIT mode, depending on the controller being used. Therefore, item No. 507 (TC MODE) should be set to P-FREE (0001).

## Time code generator (TCG) and user bit generator (UBG) mode table

**1) AUTO EDIT mode (VTR2 only)**

| Menu No.510 REGEN MODE | VTR MODE | Menu No.507 TC MODE | OPERATION MODE switch | | Menu No.503 TC&UB | Menu No.503 TC | Menu No.503 UB | |
|---|---|---|---|---|---|---|---|---|
| AS&IN | ASSEMBLE or INSERT | | | **TCG** | I-REG | I-REG | P-FREE | TCG/ UBG actual mode |
| | | | | **UBG** | I-REG | P-FREE | I-REG | |
| ASSEM | ASSEMBLE | | | Same as REGEN MODE = AS&IN | | | | |
| | INSERT | | | Same as REGEN MODE = SW | | | | |
| INSRT | ASSEMBLE | | | Same as REGEN MODE = SW | | | | |
| | INSERT | | | Same as REGEN MODE = AS&IN | | | | |
| SW | | P-REC | | **TCG** | P-REC | | | |
| | | | | **UBG** | P-REC | | | |
| | | P-FREE | | **TCG** | P-FREE | | | |
| | | | | **UBG** | P-FREE | | | |
| | | I-REG | | **TCG** | I-REG | I-REG | P-FREE | |
| | | | | **UBG** | I-REG | P-FREE | I-REG | |
| | | E-VITC | INT | **TCG** | VTR1TC | VTR1TC | P-FREE | |
| | | | | **UBG** | VTR1TC | P-FREE | VTR1TC | |
| | | | EXT or SEP | **TCG** | E-VITC | E-VITC | P-FREE | |
| | | | | **UBG** | E-VITC | P-FREE | E-VITC | |
| | | E-LTC | INT | **TCG** | VTR1TC | VTR1TC | P-FREE | |
| | | | | **UBG** | VTR1TC | P-FREE | VTR1TC | |
| | | | EXT or SEP | **TCG** | E-LTC | E-LTC | P-FREE | |
| | | | | **UBG** | E-LTC | P-FREE | E-LTC | |
| | | VTR1TC | INT | **TCG** | VTR1TC | VTR1TC | P-FREE | |
| | | | | **UBG** | VTR1TC | P-FREE | VTR1TC | |
| | | | EXT or SEP | **TCG** | VTR1TCG | VTR1TCG | P-FREE | |
| | | | | **UBG** | VTR1TCG | P-FREE | VTR1TCG | |

Items in the table above marked with a diagonal line are not related to mode settings.

**2) Mode other than AUTO EDIT (VTR1 and VTR2)**

Same as menu No. 510 REGEN MODE = SW in the AUTO EDIT mode.

## REC SAME function

This function is used to record the same time code and user bit values on VTR1 and VTR2 when both machines are in the record (NORMAL REC) mode. The values from the time code generator (TCG) and user bit generator (UBG) are recorded on both VTR1 and VTR2.

## Turning on the REC SAME function

1. Set the VTR to the stop mode.
2. Switch to the set-up menu.
3. Set VTR2 item No. 507 to VTR1TC (0005).
4. Set the OPERATION MODE switch on the front keyboard to SEP.

**<Note>**

The REC SAME function causes the time codes and user bits recorded on VTR1 and VTR2 to match only while both are in the record (NORMAL REC) mode. Therefore, if VTR1 is not in the record (NORMAL REC) mode, the time codes recorded on the VTR2 may lack continuity. The same user bit values continue to be recorded. Also, VTR2 always uses the TCG and UBG of VTR1 for regeneration, regardless of the setting for item No. 507 (TC MODE).

## REC THROUGH function

When a multiple number of VTRs have been connected in a daisy-chain configuration using TC IN/OUT (LTC), this function enables recording by using TC IN/OUT (LTC) so that the master VTR s time code generator value will serve as the reference TC for all the VTRs.

**<Note>**

In the case of the master VTR, set the TC OUT output timing to TCOUT1 irrespective of the TC MODE.
In the case of the slave VTRs, set the TC OUT output timing to TCOUT1 when E-LTC is selected as the TC MODE.

### VITC output specifications

| Mode | VTR1 (V MONI) | VTR2 (V MONI, V OUT) |
|---|---|---|
| **VV system** | Data on the tape | Data on the tape |
| **During TC recording** | Data input externally | TC recording data |
| **EE system** | Data input externally | Data input externally (At INT setting: internal data from VTR1) |

**<Note>**

The item No.502 (VITC BLANK) setting of VTR1 is valid only during playback.
In any other mode, the data which is input from an external source will be output.

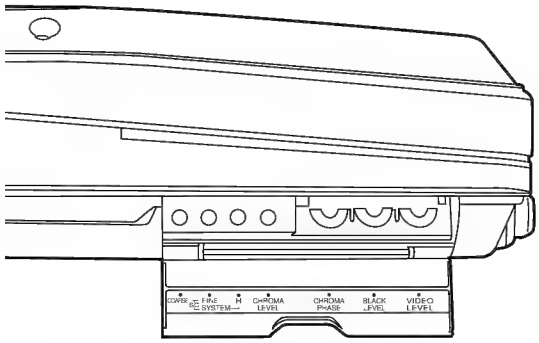
### TC OUT (LTC) output specifications

**Playback system** : The data on the tape is output at the TCOUT2 timing.
**All other systems** : Refer to the table below.

| TC MODE (see actual modes of TCG/UBG on page 61) | Output data source | | Output timing Menu item No.513 setting | <Remarks><br>**TCG** :Time code generator value<br>**VITCR** : External VITC input data<br>**LTCR** : External LTC input data<br>**VTR1 TCR** : Data on VTR1 tape |
|---|---|---|---|---|
| | **VTR1** | **VTR2** | | |
| P-REC | TCG | | TCOUT1/TCOUT2 | REC THROUGH function enabled (during TC recording) |
| P-FREE | TCG | | TCOUT1/TCOUT2 | REC THROUGH function enabled |
| I-REG | Data on tape | | TCOUT1/TCOUT2 | REC THROUGH function enabled (during TC recording) (VTR2, TCOUT2) |
| E-VITC | TCG | VITCR | TCOUT1/TCOUT2 | REC THROUGH function enabled (during VITC input on which continuous TC values are superimposed) |
| E-LTC | LTCR | | TCOUT1/TCOUT2 | REC THROUGH function enabled (during LTC input on which continuous TC values are superimposed) |
| VTR1TC (VTR2) | — | VTR1 TCR | TCOUT1/TCOUT2 | REC THOROUGH function enabled (during playback of tape on which VTR1 has recorded continuous TC values) |
| VTR1TCG (VTR2) | — | TCG | TCOUT1/TCOUT2 | REC THROUGH function enabled (when the TCG values of VTR1 are continuous) |

# ENCODER ADJUSTMENTS

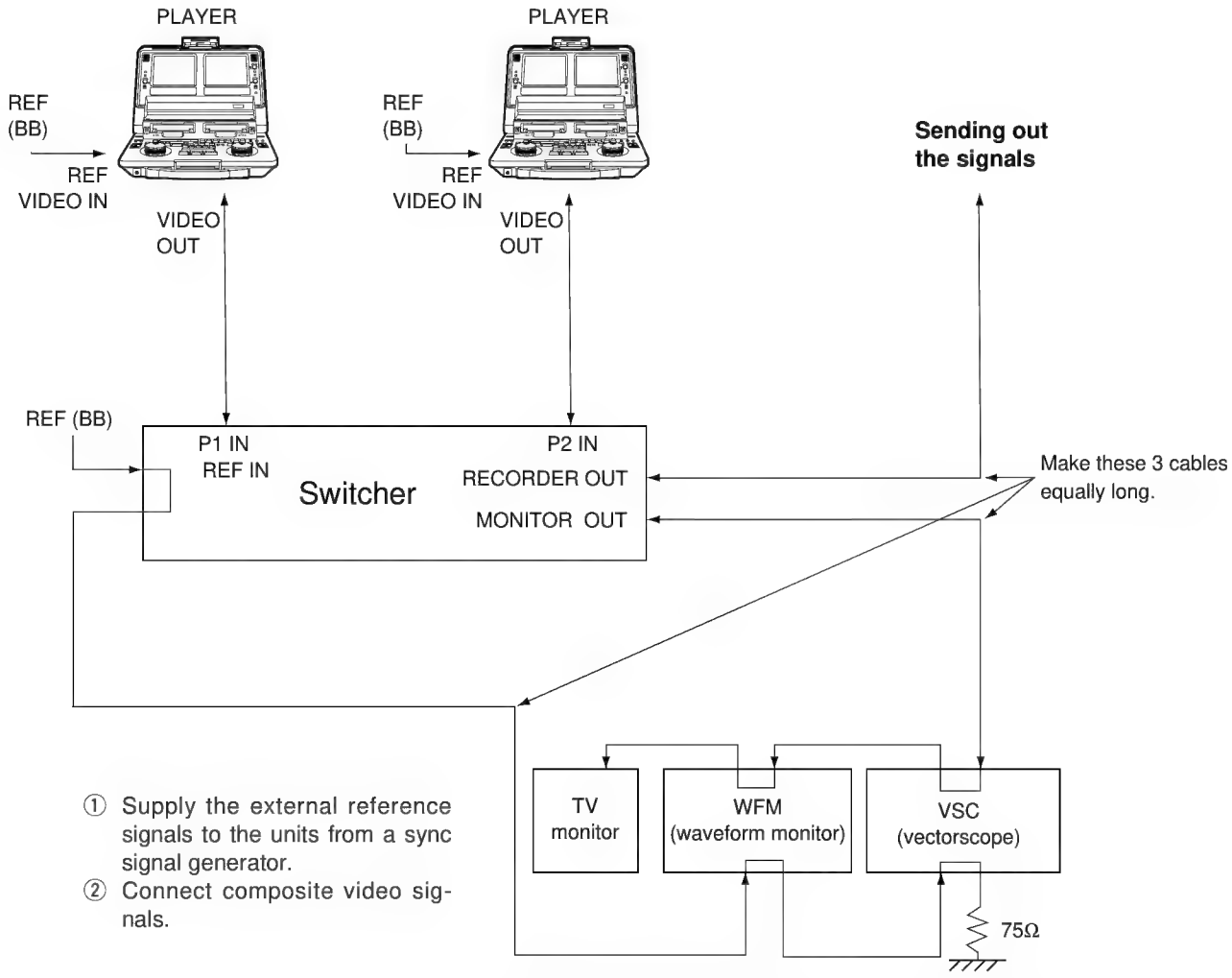




The video signals (ENCODER OUT) must be adjusted upon completion of the system connections before any signals are transmitted in order to conduct accurate error-free editing.
(This adjustment may have to be repeated whenever a connecting cable is replaced or the connections changed.)

## To adjust the encoder using the laptop:

1 Connect the units as shown below.




① Supply the external reference signals to the units from a sync signal generator.
② Connect composite video signals.

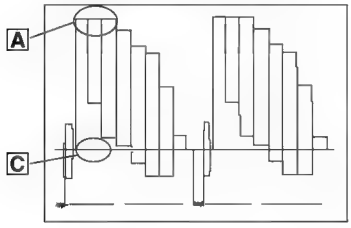
If a waveform monitor and vectorscope are unavailable, observe the images on a monitor and adjust to eliminate any colour shifting.

2 Set the REMOTE/LOCAL switch to the position (LOCAL) where the adjustment is to be made.

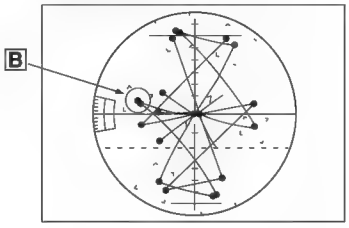
3 Conduct the adjustments using a discrete source unit.
Any deviation in the black level, video level, chroma level or chroma phase will cause colour shifting in the recorder. Adjust them using a discrete player.
1) Play back a cassette tape on which standard colour bars have been recorded.
2) Adjust the controls in such a way that the waveform monitor (WFM) and vectorscope (VSC) achieve the following.

[A] Video level: Adjust this to 100IRE.
[B] Chroma level, chroma phase: Adjust the two controls, and place the trace of the vector waveforms at the mark ⊞.
[C] Black level: Adjust so that there is no deviation.

■Waveform on WFM



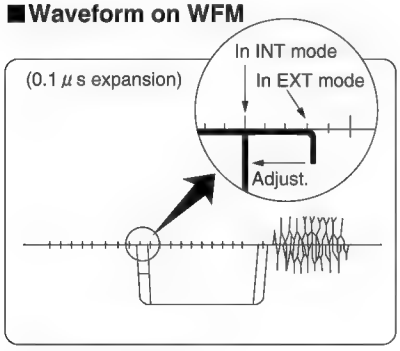

■Waveform on VSC




3) Conduct the same adjustments for the connected source unit.

4 Adjust the SYSTEM PHASE controls.
1) Play back the standard colour bars on VTR1.
2) Adjust the SYSTEM PHASE controls of VTR1.
Adjust so that the waveform monitor (WFM) achieves the following.
1. In the INT mode, expand the waveform on the WFM to 0.1 s.
2. Check the H SYNC position.
3. Now set the WFM to the EXT mode.
4. In the EXT mode, adjust the SYSTEM PHASE (H SC FINE, SC COARSE) controls in such a way that the H SYNC signal is aligned with the position in 2.

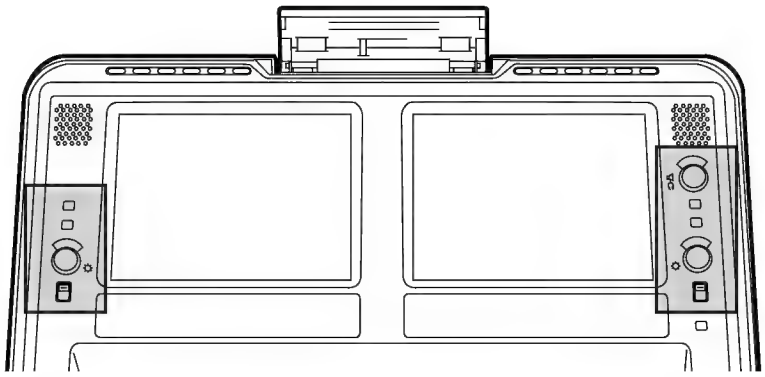
■Waveform on WFM




(Note the SYNC fall.)

# LIQUID-CRYSTAL TV MONITOR ADJUSTMENTS





### Adjustment in display section

The brightness can be adjusted in the display section.

**To adjustment the brightness:**

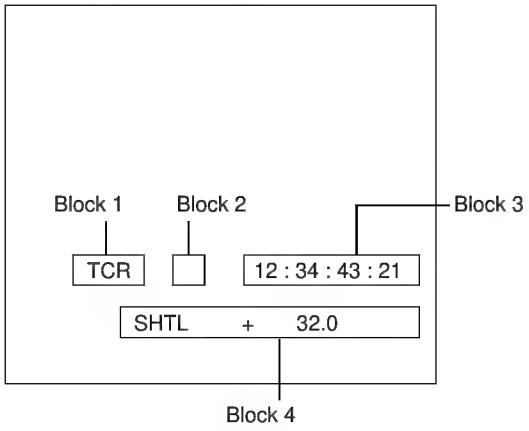
Turn the BRIGHTNESS control or set the LCD switch to LIGHT or DARK.
The screen brightens at the LIGHT setting and is dimmed at the DARK setting.

### Adjustments in set-up menu mode

The contrast and colour can be adjusted on the set-up menu. Use menu item No.802 (LCD CONT) for adjusting the contrast and, item No. 803 (LCD COLOUR) for the colour.

# SUPERIMPOSE SCREEN DISPLAYS

Superimposed displays can be added to the laptop's liquid-crystal TV monitor or to the signals output from the VIDEO MONITOR connector.




**Block 3**
The counter values are displayed in units of hours, minutes, seconds and frames.

12 : 34 : 43 : 21

: Normal mode
· Time track mode

**Block 4** (when T&STA is set for the set-up menu item No. 000)

| | |
|---|---|
| EJECT | E_PLAY |
| STOP | SHTL |
| REW | JOG |
| FF | VAR |
| STOP | PPLY |
| STANDBY_OFF | POWER OFF |
| PLAY | AUTO OFF |
| REC | DEW |
| EDIT | |

- **Search speed display**
  - REV, SHTL and FWD are displayed during external VTR control.
  - In the jog mode, REV, STILL or FWD is displayed.
  - The tape speed is displayed in SHTL, VAR and PPLY.
    **SHTL – 32.0** (where "32.0" is the speed and "–" denotes the reverse tape direction (compared with "+" which denotes the forward tape direction)

**Block 1**

| | |
|---|---|
| CTL : | Control signal |
| TCR : | Time code |
| T*R : | Time code (when it cannot be read) |
| UBR : | User bit |
| U*R : | User bit (when it cannot be read) |
| TCG : | Time code generator value |
| UBG : | User bit generator value |

**Block 2**

| | |
|---|---|
| No display : | Normally, nothing is displayed here. |
| P : | When the supply voltage has dropped |
| S : | When the fan has stopped |
| L : | When LOW RF |

**Block 4** (when T&YMD, T&MDY, T&DMY or T&RT is set for the set-up menu item No. 000)

| | |
|---|---|
| **DATE:** | Date on which tape was shot |
| **D*TE:** | Date on which tape was shot (when it cannot be read) |
| **TIME:** | Time (hr/min/sec) at which tape was shot |
| **T*ME:** | Time at which tape was shot (when it cannot be read) |

With the on-screen display, the superimposed signals are added to the liquid-crystal TV monitor or to the signals output from the VIDEO MONITOR connector.

### To superimpose displays:

First check the connections, and then press the COUNTER/REMAIN switch. Check that characters are now displayed on the monitor.
If no characters are superimposed, press the COUNTER/REMAIN switch again.

For details on the superimposed display function, refer to the next page.

# SUPERIMPOSE SCREEN DISPLAYS

The superimposed displays can be changed using the set-up menus.

### What is displayed:
One of four different displays can be selected using set-up menu item No.000 (DISPLAY SEL): 1) counter value only, 2) counter value and operation mode, 3) counter value and shooting date, and 4) counter value and shooting time. However, the shooting date and time are displayed only when playing back a tape which was shot using a DV or DVCAM camera recorder.

### Setting whether the superimposed display is to appear on the liquid-crystal monitor:
Whether the superimposed display is to appear or not is selected in set-up menu item No. 001 (LCD SUPER).

### Characters displayed:
The background for the characters displayed can be changed in set-up menu No. 002 (CHARA TYPE).

### CTL counter display:
Either the 12-hour or 24-hour system can be set in set-up menu item No. 003 (TAPE TIMER).

Besides these selections which are made using the set-up menus, the position where the superimposed characters are displayed can be switched to the top or bottom by pressing the COUNTER/REMAIN switch.

For details on the set-up menus, refer to pages 23 to 35.

# CONNECTOR SIGNALS

**VIDEO**

| | | |
|---|---|---|
| VIDEO/Y IN | BNC 3 | VIDEO/Y, PB, PR |
| REF VIDEO IN | BNC 2 | loop-through format with 75-ohm, automatic termination |
| VIDEO/Y OUT | BNC 3 | VIDEO/Y, PB, PR (for VTR2) |
| PB VIDEO OUT | BNC 3 | VIDEO/Y, PB, PR (for VTR1) |
| VIDEO MONITOR OUT | BNC 1 | |

**AUDIO**

| | | |
|---|---|---|
| AUDIO IN | XLR 2 | CH1、CH2 |
| AUDIO OUT | XLR 2 | CH1、CH2 |
| PB AUDIO OUT | XLR 2 | CH1、CH2 |
| AUDIO MONITOR OUT | XLR 1 | CH1/CH2/MIX |

**TC**

| | |
|---|---|
| TC IN | BNC 1 (also serves as REF VIDEO IN) |
| TC OUT | BNC 1 (also serves as VIDEO MONITOR OUT) |

**DC IN**

XLR 4P

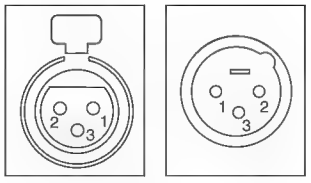
**REMOTE (9P)**

| Pin No. | Signal | Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|---|---|
| 1 | FRAME GROUND | 4 | RECEIVE COMMON | 7 | TRANSMIT B |
| 2 | TRANSMIT A | 5 | — | 8 | RECEIVE A |
| 3 | RECEIVE B | 6 | TRANSMIT COMMON | 9 | FRAME GROUND |

**EDL (9P)**

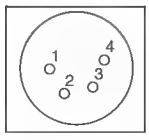
| Pin No. | Signal | Pin No. | Signal | Pin No. | Signal |
|---|---|---|---|---|---|
| 1 | DCR | 4 | DTR | 7 | RTS |
| 2 | RD | 5 | GND | 8 | CTS |
| 3 | TD | 6 | DSR | 9 | — |

AUDIO IN/OUT



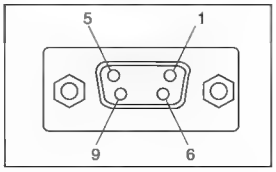

1. GND
2. HOT
3. COLD

DC IN

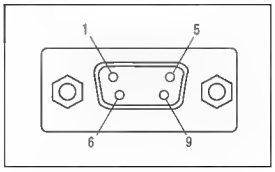



1. GND
2.
3.
4. +12V

REMOTE




EDL



# ERROR MESSAGES

When one of the following message numbers appears on the display, the VTR is set to the auto OFF mode (stop) or its power is forcibly turned off. Turn off the power, and then turn it back on. If the error persists after this, consult your dealer.



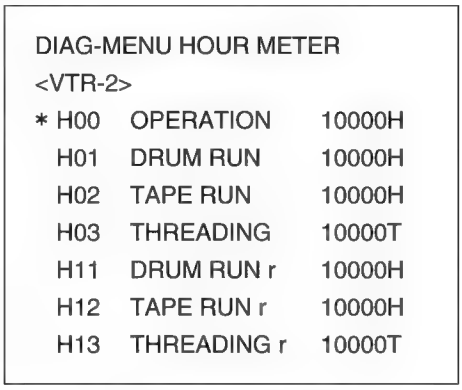
| Error No. | Details of error | VTR operation |
|---|---|---|
| E-11 | When the cassette was inserted, the reel motor locked up for about 2.5 seconds or longer. When the cassette is ejected, the VTR is set to the auto OFF mode. | STOP |
| E-21 | When the cassette was removed, the front loading motor locked up for about 4 seconds. When the cassette moves down again and the motor locks up again even if an attempt is made to remove the cassette, the VTR is set to the auto OFF mode if the cassette has moved down. | STOP<br>STOP |
| E-31 | The loading motor locked up for about 4 seconds when the cassette was loaded. If the motor locks up even when the cassette is unloaded and loaded again, the cassette is ejected. The VTR is set to the auto OFF mode. | STOP |
| E-32 | The motor locked up for about 4 seconds when the cassette was unloaded. The VTR is set to the auto OFF mode. | STOP |
| E-41 | The FG (rotational speed) signal is not output from the cylinder motor. | STOP |
| E-42 | The PG (phase speed) signal is not output from the cylinder motor. | STOP |
| E-43 | The cylinder motor speed is abnormally high. | STOP |
| E-44 | The cylinder motor speed is abnormally low. | STOP |
| E-51 | The FG (rotational speed) signal is not output from the capstan motor. | STOP |
| E-52 | The capstan motor speed is abnormally high. | STOP |
| E-53 | The capstan motor speed is abnormally low. | STOP |
| E-61 | The supply reel motor has locked up. | STOP |
| E-62 | The take-up reel motor has locked up. | STOP |
| E-63 | The supply reel motor speed is abnormally high. | STOP |

| Error No. | Details of error | VTR operation |
|---|---|---|
| E-64 | The take-up reel motor speed is abnormally high. | STOP |
| E-65 | Abnormal tension has been detected. | STOP |
| E-66 | At the tape start or end, the short FF or REW operation does not stop even after 7 or more seconds. | STOP |
| E-67 | A check sum error was detected in the serial data communication between the syscon and servo. | STOP |
| E-68 | In serial data communication between the syscon and servo, the data was fixed at low or high and the absence of data was detected. | STOP |
| E-69 | A communication error was detected in the serial data between the syscon and servo when the power was turned on. | STOP |
| E-70 | About an hour has elapsed after the fan motor stopped. The VTR forcibly turns off its power. | Forced POWER OFF |
| E-71 | The heat sensor was activated and an abnormally high temperature inside the VTR was detected. | Forced POWER OFF |
| E-72 | Trouble in the solenoid drive circuitry was detected. | Forced POWER OFF |
| E-73 | Trouble in the cleaning solenoid drive circuitry was detected. | Forced POWER OFF |
| E-BA | The input supply voltage dropped below the undercut voltage. | Forced POWER OFF (*) |

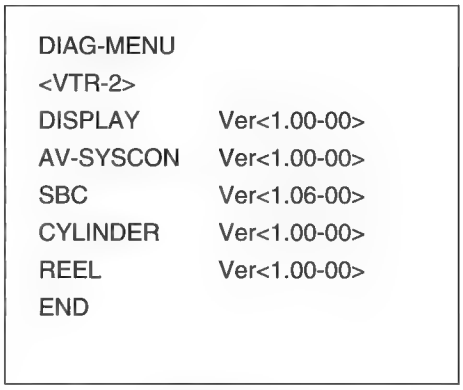
(*) The counter display flashes to provide a warning.

# DIAG-MENU OPERATIONS

The unit s system software version display, hour meter displays for the drum motor, rotating heads, etc. (for number of hours used can be viewed on the DIAG menu.


DIAG-MENU HOUR METER
<VTR-2>
* H00 OPERATION 10000H
H01 DRUM RUN 10000H
H02 TAPE RUN 10000H
H03 THREADING 10000T
H11 DRUM RUN r 10000H
H12 TAPE RUN r 10000H
H13 THREADING r 10000T

**Hour meter display**




**Version display**
(Above display is version for VTR2.)

## To transfer from a regular mode to the DIAG mode:

1. Set the unit to the jog mode.
   • Remember that the mode cannot be transferred in the shuttle mode.

2. Press the DIAG (SHIFT+REC) buttons. (This cannot be done by remote control.)
   The hour meter displays appear on the VTR1 and VTR2 monitor screens.

3. Turn the dial to move to an item.
   Turn it clockwise (FWD) to move down and counterclockwise (REV) to move up.

## To display the version:

1. Press the FF button on the VTR2 while holding down the SHIFT button.
   The display changes from hour meter to version.

## To return from the DIAG mode to the normal mode:

Press the DIAG (SHIFT+REC) buttons.

Details of the hour meter display are given below.

| Item | | Data | Description |
|---|---|---|---|
| No. | Display | Display | |
| H00 | OPERATION | 00000H<br>⋮<br>999999H | The period of time during which the power has been supplied since it was turned on is displayed in 1-hour increments. |
| H01 | DRUM RUN | 00000H<br>⋮<br>999999H | The period of time during which the drum has been rotating is displayed in 1-hour increments. |
| H02 | TAPE RUN | 00000H<br>⋮<br>999999H | The tape travel duration in the fast forward, rewind, play, search (JOG, VAR, SHTL), recording or editing mode (but not in the STILL mode with JOG, VAR and SHTL) is displayed in 1-hour increments. |
| H03 | THREADING | 00000H<br>⋮<br>999999H | The number of times the tape has been threaded or unthreaded is didplayed in 1-time increments. |

The H11 to H13 numbers are displays which are used by the servicing technicians.

## Video head cleaning

This laptop has an auto head cleaning function which automatically reduces the amount of dirt on the heads. However, for even higher reliability, it is recommended that the video heads be cleaned every day.

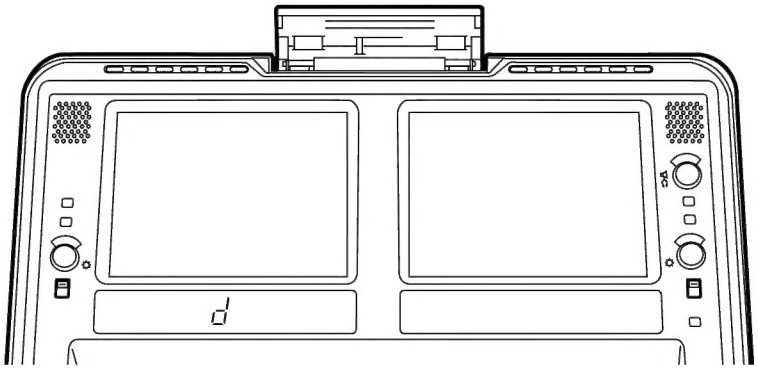
Use the cleaning fluid designated by Panasonic.

## Condensation

The principle behind the formation of condensation is the same as that which causes droplets of water (condensation) to form on the window panes of a heated room when it is cold outside. Condensation forms on the laptop or tape when it is moved to a location with a significantly different temperature and humidity. More specifically, it forms when the laptop of tape is:

• Taken to a very steamy and humid location or into a room where the heating was just turned on.
• Taken suddenly from an air-conditioned room to a very hot and humid location.

In such cases, do not turn the power on immediately but leave the unit standing for about 10 minutes. When condensation has formed in the unit, “d” appears on the counter section. Keep the power on and wait until “d” is cleared.




## Maintenance

Before proceeding with maintenance, set the power switch to OFF and be sure to take hold of the power plug to disconnect the power cable from the power outlet.
Use a soft cloth to clean the cabinet. To remove stubborn dirt, dilute some neutral detergent with water, dip a cloth into the solution, wring it out, and wipe away the dirt. Then wipe off any remaining moisture using a dry cloth.

## Cautions

Do not place the video cassette on top of bed covers or carpet when in use.

- Do not insert fingers or any objects into the video casette holder.
- Avoid operating or leaving the unit near strong magnetic fields. Be especially careful of large audio speakers.
- Avoid operating or storing the unit in an excessively hot, cold, or damp environment as this may result in damage both to the unit and to the tape.
- Do not spray any cleaner or wax directly on the unit.
- If the unit is not going to be used for a length of time, protect it from dirt and dust.
- Do not leave a cassette in the unit when not in use.
- Do not block the ventilation slots of the unit.
- Use this unit horizontally and do not place anything on the top panel.
- Cassette tape can be used only for one-side, one direction recording. Two-way or two-track recordings cannot be made.
- Cassette tape can be used for either Colour or Black & White recording.
- Do not attempt to disassemble the unit. There are no user serviceable parts inside.
- If any liquid spills inside the unit, have the unit examined for possible damage.
- Refer any needed servicing to authorized service personnel.

# SPECIFICATIONS

## GENERAL

Rating input: DC 12V 9A

| | |
|---|---|
| Recording format: | DVCPRO |
| Recording tracks | Digital video |
| | Time code; Recorded in sub-code area |
| | Digital audio; 2 channels |
| | Cue signal; 1 track |
| | Control (CTL); 1 track |
| Tape speed: | 33.854 mm/sec. |
| Recording time: | 184 min. (with AJ-5P92LP tape) |
| | 66 min. (with AJ-P66MP tape) |
| Tape used: | 1/4" thin magnetic layer metal tape |
| FF/REW time: | Less than 3.5 min. (with AJ-5P92LP tape) |
| Editing accuracy: | 0 frame (with time code) |
| Tape timer accuracy: | 2 frame (per event when continuous CTL signal is used) |
| Servo lock time: | Less than 0.5 sec. |
| Ambient operating temperature: | 5°C to 40°C |
| Ambient operating humidity: | 10% to 85% (no condensation) |
| Dimensions: | 424 (W) × 120 (H) × 435 (D) mm |
| Weight: | 11.9 kg |

## VIDEO

### DIGITAL

| | |
|---|---|
| Sampling frequency: | Y; 13.5 MHz, |
| | $P_B$, $P_R$; 3.375 MHz |
| Quantization: | 8 bits |
| Error correction: | Reed-Solomon codes |

### ANALOGUE COMPOSITE IN/OUT

| | |
|---|---|
| Video band range: | Y; 25 Hz – 5.5 MHz ( 1dB Typ) |
| DG: | Less than 6% |
| DP: | Less than 4.5° |
| Y/C delay: | Less than 30 nsec |
| K factor: | Less than 2% |
| Analogue composite input: | BNC × 2 (VTR1, VTR2), 75 ohms |
| REF video input: | BNC × 2 (loop-through), 75 ohms, automatic |
| Analogue composite output: | BNC × 2 (VTR1, VTR2), 75 ohms |
| Monitor output: | BNC × 2 (VTR1, VTR2), 75 ohms, superimpose ON/OFF |

### ANALOGUE COMPONENT IN/OUT

| | |
|---|---|
| Video band: | Y; 25 Hz – 5.5 MHz ( 1 dB), 5.75 MHz ( 3 dB) |
| | $P_B$, $P_R$; 25 Hz – 1.3 MHz ( 1.0 dB) |
| S/N: | 53 dB |
| K factor: | Less than 2% |
| Analogue component input: | BNC × 6 (Y, $P_B$, $P_R$, VTR1, VTR2), 75 ohms<br>Y connector is switched with the analogue composite input connector. |
| Analogue component output: | BNC × 6 (Y, $P_B$, $P_R$, VTR1, VTR2), 75 ohms<br>Y connector is switched with the analogue composite output connector. |

### VIDEO OUTPUT SIGNAL (only for analogue composite signal)

| | |
|---|---|
| Video gain: | More than 3dB |
| Chroma gain: | More than 3dB |
| Chroma phase: | More than 25° |
| Black level: | 70 mV |
| H phase: | More than 1.5µsec |
| SC phase (COARSE): | 360° |
| SC phase (FINE): | 90° |

# SPECIFICATIONS



## AUDIO

### DIGITAL

| | |
|---|---|
| Sampling frequency: | 48 kHz |
| Quantization: | 16 bits |
| Frequency response: | 20 Hz~20 kHz 1dB |
| Dynamic range: | More than 85dB (1kHz, emphasis off, "A" weighted) |
| Distortion rate: | Less than 0.1% (1kHz, emphasis off, standard level) |
| Crosstalk: | Less than –80dB (1kHz, between 2 channels) |
| Wow & flutter: | Under measurable value |
| Headroom: | 18 dB |
| Emphasis: | T1=50µsec/T2=15µsec (on/off enable) |

### ANALOGUE IN/OUT

| | |
|---|---|
| Analogue input (VTR1): | XLR × 2 (CH1, CH2), high impedance, 4/0/–20dBu |
| Analogue input (VTR2, CH1): | XLR, high impedance, 4/0/–20dBu |
| Analogue input (VTR2, CH2): | XLR, high impedance, 4/0/–20/–50dBu |
| Analogue output (VTR1): | XLR × 2 (CH1, CH2), low impedance, 4/0/–20dBu |
| Analogue output (VTR2): | XLR × 2 (CH1, CH2), low impedance, 4/0/–20dBu |

### MONITOR OUTPUT/HEADPHONES

| | |
|---|---|
| Monitor output (VTR1): | XLR × 1, low impedance, 0dBu, CH1/MIX/CH2 selectable |
| Monitor output (VTR2): | XLR × 1, low impedance, 0dBu, CH1/MIX/CH2 selectable |
| Headphones: | Mini-Stereo, variable level (Max. –20dBu), 8 ohms, VTR1/MIX/VTR2 selectable, CH1/MIX/CH2 selectable |

## OTHERS

| | |
|---|---|
| TC input: | BNC × 1 (switched to reference input connector through OUT position) |
| TC output: | BNC × 2 (switched to VTR1, VTR2, video monitor output connector) |
| Remote: | D-sub 9-pin (female) × 2 (VTR1, VTR2), RS-422A interface |
| EDL: | D-sub 9-pin (male), RS-232C interface |

## LCD MONITOR

| | |
|---|---|
| LCD display: | 6.5 inches TFT active matrix × 2 (VTR1, VTR2) |
| Brightness adjustment: | Variable volume × 2 (VTR1, VTR2) |
| Screen adjustment: | Colour, Contrast (separate left and right OSD menu) |
| Backlight switches: | Bright/Dark/Off (separate left and right switches) |

## SPEAKERS

Built-in speakers × 2, VTR1/MIX/VTR2 selectable, CH1/MIX/CH2 selectable

## DISPLAY TUBE (VTR1, VTR2 separately)

| | |
|---|---|
| Counter: | 8 digits (CTL/TC/UB selectable, total, remaining tape length) |
| Audio level meters: | 16 steps |
| Others: | Servo lock lamp, DV lamp, tape travel status indication, recording/recording inhibit lamp, Video/REF input lamp |

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.